



Faunistic composition, ecological properties and zoogeographical composition of the family Elateridae (Coleoptera) of the Central Anatolian Region of Turkey

Mahmut Kabalak¹ and Osman Sert²

Hacettepe University Faculty of Science, Department of Biology, 06532 Beytepe Ankara, Turkey

Abstract

The focus of this study was to understand the faunistic composition, ecological properties and zoogeographical composition of Elateridae (Coleoptera) of the Central Anatolian region. 72 species belonging to seven subfamilies and 25 genera were identified. The major part of the Elateridae fauna of the Central Anatolian region is formed by the subfamilies Elaterinae and Cardiophorinae. The genus *Cardiophorus* was the most species-rich genus. The species composition of the Elateridae fauna of the Central Anatolian region is partially consistent with known Elateridae fauna of Turkey. The Central Anatolian region shares most species with the European part of the Western Palaearctic as does the Elateridae fauna of Turkey. Detailed localities of nine species are given for the first time for Turkey, with emphasis on the Central Anatolian region.

Keywords: Click beetles, species composition, phenology, abundance, habitat preference, distribution

Correspondence: ¹ mahmut@hacettepe.edu.tr, ² sert@hacettepe.edu.tr

Editor: Takumasa Kondo was Editor of this paper

Received: 4 January 2011, **Accepted:** 19 April 2011

Copyright : This is an open access paper. We use the Creative Commons Attribution 3.0 license that permits unrestricted use, provided that the paper is properly attributed.

ISSN: 1536-2442 | Vol. 11, Number 57

Cite this paper as:

Kabalak M, Sert O. 2011. Faunistic composition, ecological properties and zoogeographical composition of the family Elateridae (Coleoptera) of the Central Anatolian Region of Turkey. *Journal of Insect Science* 11:57 available online: insectscience.org/11.57

Introduction

The family Elateridae is the ninth biggest family of Coleoptera and belongs to the superfamily Elateroidea (Lawrence, 1982). According to various authors (Lawrence, 1982; Lodos, 1998; Demirsoy, 1999; Booth et al., 1990; Laibner, 2000), the family Elateridae has 6,000-10,000 species. In Turkey, there are eight subfamilies, 65 genera and more than 450 species belonging to the Elateridae (Mertlik and Platia, 2008; Kabalak and Sert, 2009; Platia and Gudenzi, 2009; Platia et al., 2009; Schimmel et al., 2009). The number of species of Elateridae in Turkey is increasing rapidly.

Turkey is at the intersection of three continents (Asia, Africa, and Europe) (Figure 1) and it was divided into seven geographic regions (three inner regions and four coastal regions) at the first geography congress of Turkey in Ankara in 1941. Geographic regions were determined according to several criteria, including the presence of sea around three sides of Turkey; parallel extension of high mountains to coasts; separation of the middle part of Anatolia from the sea by high mountains thus climatic and floristic differentiations occur between inner parts and coastal parts; and the distribution of agriculture types and transportation systems and house types. The first four of the seven regions determined to be adjacent to the sea are the Black Sea region, Marmara region, Aegean region and Mediterranean region. The other three regions are named according to their location in the whole of Anatolia (Central Anatolian region, Eastern Anatolian region and Southeastern Anatolian region) (www.cografya.gen.tr/egitim/bolgeler/).

The Central Anatolian Region (Figure 2) is one of Turkey's seven geographical regions. The surface area is 151,000 square kilometers and it occupies 20% of Turkey's land area. It is the second largest geographical region after the Eastern Anatolian region. It is surrounded by other regions except the Southeastern Anatolian region. The Central Anatolian region contains the Aksaray, Ankara, Çankırı, Eskişehir, Karaman, Kayseri, Kırıkkale, Kırşehir, Konya, Nevşehir, Niğde, Sivas and Yozgat provinces. It is composed of Konya, Upper Sakarya, Middle Kızılırmak and Upper Kızılırmak subregions. The Central Anatolian region has an appearance that is simple in terms of landforms. Plains are usually found in most parts of the Central Anatolian region at 1000 m elevation. Areas and river valleys of the Sakarya and Kızılırmak rivers are the lowest in elevation at about 700 meters. Volcanic mountains, which extend from Northeast to Southwest, are the Hasandağ, Karacadag, Karadağ, Erciyes and Melendiz mountains. Mountain chains include the Akdağlar, Hınzır, Tecer and Yıldız mountains. This Central Anatolian region is composed of many plateaus, including the western Haymana and Cihanbeyli plateaus, the southern Obruk plateau, the eastern Bozok (Kızılırmak) plateau, the Yazılıkaya (Bayat) plateau at the border with the Aegean Region and the Uzunyayla plateau at the border with the Eastern Anatolian region. The Salt Lake is the largest closed basin in the research area. Some of the plains of Central Anatolia are very broad. The Konya Plain is the largest plain of Turkey, which is at the base of an old lake. The Kızılırmak, Sakarya, Porsuk, Çekerek and Delice are the most important rivers in the Central Anatolian region. The Salt Lake is the largest lake in the region. Other major lakes are the Akşehir, Eber, Ilgın (Çavuşçu), Tuzla, Seyfe, Eymir and Mogan.

High mountains surround the region. Humid and temperate sea air cannot penetrate into the Central Anatolian region, causing the summers to be hot and dry, and winters to be cold and snowy with a dominant continental climate. Elevation increases towards the eastern part of region and winter temperatures decrease to very low values. Precipitation is lowest at the Central Anatolian region of Turkey and it has 7% of all forests of Turkey (www.cografya.gen.tr/egitim/bolgeler/ic-anadolu.htm).

There are many studies on the Elateridae fauna of Turkey, which were done mostly by foreign researchers. Most of these studies are limited in scope and generally are descriptions of new species. Studies on Turkish Elateridae include the following: Bodemeyer (1900), Buysson (1891), Cate and Platia (1989, 1997), Cate et al. (2002), Cate (2007), Chassain (1998), Dolin (1995), Dolin and Mertlik (2002), Dušánek and Mertlik (2007), Fairmaire (1866), Guglielmi and Platia (1985), Gurjeva (1972, 1989), Gül-Zümreoğlu (1972), Gülpérçin and Tezcan (2009), Heyden et al. (1906), Horion (1953), Jagemann (1939), Kabalak and Sert (2005), Kabalak and Sert (2006, 2009), Kesdek et al. (2006), Laibner (2000), Lodos (1998), Lohse (1979), Mertlik (2000, 2005), Mertlik and Dušánek (2006), Platia (1989, 1994, 2001, 2003a, 2003b, 2004a, 2004b), Platia and Cate (1990), Platia and Gudenzi (1996a, 1996b, 1998a, 1998b, 1999, 2000a, 2000b, 2002a, 2002b, 2004a, 2004b, 2005, 2007, 2009), Platia, Kabalak and Sert. (2007), Platia and Kovancı (2005), Platia and Marini (1990), Platia and Mertlik (1996), Platia and Schimmel (1991, 1992, 1993, 1994), Platia and Tarnawski (1998), Platia, Yıldırım and Kesdek (2007), Reitter (1905, 1910, 1911, 1918), Roubal (1924), Sahlberg (1912-1913), Schenkling (1925, 1927), Schimmel (1990), Schwarz

(1892, 1900, 1902), Tarnawski (1995, 1996, 2001), Winkler (1924 - 1932), Wurst (1994, 1995a, 1995b, 1997), Wurst and Schimmel (1995), Yüksel (1970), Zeising and Brunne (2003).

The main aim of this research was to study the faunistic composition (species distributions of subfamilies and genera), ecological properties of species (abundance and rarity of species, vertical distributions of species, habitat preferences of species and seasonality of species and genera) and the zoogeographical composition of the Elateridae fauna including the faunal relations between the Central Anatolian region and other geographical regions of Turkey.

Materials and Methods

In this study, species collected mostly between April and August between 2005–2008 from the Central Anatolian region were part of a Tübitak project entitled: "Systematic studies on the family Elateridae (Coleoptera) in Central Anatolian and Middle Black Sea regions of Turkey". Some specimens from the insect collection of the Entomology Laboratory of the Department of Biology, Hacettepe University collected in 1995, 1999, 2001–2004 and 2009 were also included in this study. Specimens were collected using different methods (insect net, Japanese umbrella, light trap and aspirator). Locality details of specimens (collecting provinces and counties, GPS coordinates, altitudes, collecting dates) are given. In the Material Examined section, the collector's name is listed at the end as 'col.'.

Determinations of species were done by using published taxonomic keys (Gurjeva 1984; Laibner 2000; Platia 1994, 2003a, 2003c; Platia and Gudenzi 1998b, 2000b, 2002a,

Table 1. Number of species and collected specimens.

Species	Number of Specimens	Collecting habitats and methods	Collecting Months	Vertical Distribution
<i>Adrastus anatolicus</i>	273	Hps-In	May, Jun, Jul	C, D, E, F, G
<i>A. circassicus</i>	6	Hps-In	Jul	E, F, G
<i>A. montanus</i>	1	Hps-In	Jun	E
<i>Aeoloderma crucifer</i>	5	Usds-As, Usp-As	Apr, May, Jun	D
<i>Aeolosomus rossi</i>	6	Usds-As	May	D
<i>Agriotes gurgistanus</i>	5	Usp-As	Jul	E, F, G
<i>A. heydeni</i>	34	Lt	Jul	F
<i>A. infuscatus</i>	3	Fhp-In	May, Jun	E, F, G
<i>A. lineatus</i>	8	Hps-In	Jul	E
<i>A. modestus</i>	6	Usp-As	Apr	E
<i>A. paludum</i>	629	Hps-In	Apr, May, Jun, Jul	A, C, D, E, F, G, H
<i>A. propleuralis</i>	1	Usp-As	Jul	G
<i>A. proximus</i>	80	Hps-In, Usp-As	Apr, May, Jun, Jul	D, E, F, G, H, I
<i>A. sputator</i>	155	Hps-In, Usp-As, Hpfr-In	Apr, May, Jun, Jul	D, E, F, G
<i>Agrypnus crenicollis</i>	7	Usds-As	May, Jun	G
<i>Ampedus cinnaberinus</i>	31	Dt-As	May	D, E
<i>A. elegantulus</i>	8	Dt-As	May, Jun	D, E, F, G
<i>A. nigroflavus</i>	1	Dt-As	May	D
<i>A. ochropterus</i>	1	Fhp-In	Jun	H
<i>A. platiai</i>	8	Dt-As	May	E, F
<i>A. pomonae</i>	2	Dt-As	May	D
<i>A. samedovi</i>	29	Dt-As	Apr, May, Jun	D, E, F, G
<i>A. sanguinalentus</i>	24	Dt-As, Hpfr-In	Apr, May, Jun	D, E, F, G
<i>Athous (s.str.) haemorrhoidalis</i>	40	Hps-In	Apr, May, Jun	D, E, F, G, H
<i>A. (Haplothous) subfuscus</i>	20	Tb-Ju, Fhp-In	Jun, Jul	G, H
<i>Cardiophorus (s.str.) analis</i>	4	Hpfr-In	May	E
<i>C. (s.str.) anticus</i>	4	Hps-In	May, Jun	D, E
<i>C. (s.str.) discicollis</i>	6	Hps-In, Hpfr-In	May, Jun	D, E, F
<i>C. (s.str.) dolini</i>	150	Hpfr-In	Apr, May, Jun, Jul	C, D, E, F
<i>C. (s.str.) frequens</i>	4	Hps-In, Fhp-In	Apr, May	E, F
<i>C. (s.str.) impressiventris</i>	8	Hpfr-In	Apr	E
<i>C. (s.str.) kindermanni</i>	5	Hps-In, Hpfr-In	May, Jun	B, E, F
<i>C. (s.str.) lewis</i>	1	Hpfr-In	May	F
<i>C. (s.str.) megathorax</i>	88	Hpfr-In	May, Jun	D, E, F
<i>C. (s.str.) miniatocollis</i>	1	lb-As	Apr	E
<i>C. (s.str.) nigratissimus</i>	284	Hpfr-In	May, Jun, Jul	C, D, E, F
<i>C. (s.str.) parvulus</i>	12	Hps-In, Usp-As	May, Jun	B, D, E, F
<i>C. (s.str.) ruficrus</i>	4	Usp-As, Hpfr-In	May	C, D
<i>C. (s.str.) sacratus</i>	8	Hps-In, Hpfr-In	Apr, May, Jun	C, D, E, F, H
<i>C. (s.str.) vestigiatus</i>	7	Hps-In, Fhp-In, Hpfr-In	Apr, May, Jun	D, F
<i>Dolopius marginatus</i>	8	Hps-In, Fhp-In	May, Jun	F, H
<i>Dicronychus adanensis</i>	8	Hps-In	May	C
<i>D. cinereus</i>	67	Tb-Ju, Hps-In	May, Jun	C, D, F, G
<i>D. iconiensis</i>	25	Hps-In, Hpfr-In, Usp-As	Apr, May	C, D, E, G, H
<i>D. obscuripennis</i>	1	Hpfr-In	Apr	D
<i>D. senaci</i>	5	Tb-Ju, Hpfr-In	Apr, Jun	C, H
<i>Drapetes mordelloides</i>	3	Hpfr-In	Jun, Jul	E, F
<i>Drasterius bimaculatus</i>	231	Hps-In, Usds-As	Apr, May, Jun, Jul, Sep, Nov	B, C, D, E, F, G
<i>Hemicrepidius hirtus</i>	4	Hpfr-In	Jul, Jun	D, E, F
<i>H. nigrirutilus</i>	1	Fhp-In	Jul	F
<i>Idotarnonides anatolicus</i>	1	Hpfr-In	Jun	E
<i>Limonius minutus</i>	3	Lt, Hps-In, Hpfr-In	May, Jun	G
<i>Limoniscus elegans</i>	1	Tb-Ju	Jun	D
<i>Melanotus (s.str.) bajulus</i>	1	Usp-As	Jul	G
<i>M. (s.str.) fraseri</i>	6	Lt	Jul, Aug	C, D, E
<i>M. (s.str.) fusciceps</i>	29	Lt	Jul, Aug	D, E, F
<i>Mulsanteus guillebeaui</i>	2	Lt, Hpfr-In	Jul, Aug	D
<i>Nothodes parvulus</i>	8	Hpfr-In	May, Jun	D, E, G
<i>Peripontius crassus</i>	8	Tb-Ju, Usds-As	Apr, May	B
<i>P. omissus</i>	17	Dt-As, Hps-In	May, Jun, Jul	C, E, F
<i>P. terminatus</i>	11	Tb-Ju, Hps-In	May, Jun, Jul	E, F
<i>Prosternon syriacum</i>	6	Hps-In, Fhp-In	Jun, Jul, Aug	C, E, F, H
<i>P. tessellatum</i>	1	Fhp-In	Jun	G
<i>Quassimus minutissimus</i>	69	Tb-Ju, Fhp-In	May, Jun, Jul	E, G, H
<i>Selatossomus (s.str.) amplicollis</i>	3	Usp-As	May	I
<i>S. (s.str.) latus</i>	2	Usp-As, Hpfr-In	May, Jun	E, G
<i>Synaptus filiformis</i>	430	Hps-In, Lt	Apr, May, Jun, Jul	B, C, D, E, F, G
<i>Zoroachrus dermestoides</i>	3	Usds-As	May, Jun	C, F
<i>Z. georgicus</i>	1	Usds-As	Jun	F
<i>Z. heyrovskyi</i>	26	Usds-As	Apr, May, Jun	E, F, H
<i>Z. pilosellus</i>	4	Usds-As	May	B
<i>Z. stibicki</i>	1	Usds-As	May	F

Collecting habitat and methods (**Fhp-In**: Forest ground herbaceous plants-Insect net, **Hps-In**: Herbaceous plants near streams-Insect net, **Hpfr-In**: Herbaceous plants near fields and roads-Insect net, **Tb-Ju**: Trees and bushes-Japanese Umbrella, **Lt**: Light trap, **lb-As**: Inside building-Aspirator, **Dt-As**: Decaying trees-Aspirator, **Usds-As**: Under stones and detritus near stream-Aspirator, **Usp-As**: Under stones and plants-Aspirator),

Collecting months (**Apr**: April, **May**: May, **Jun**: June, **Jul**: July, **Aug**: August, **Sep**: September, **Nov**: November), Vertical distribution (A: 0-250m, B: 251-500m, C: 501-750m, D: 751-1000m, E: 1001-1250m, F: 1251-1500m, G: 1501-1750m, H: 1751-2000m, I: 2001m and above)

This table was prepared by using recorded data of species collected during field studies and specimens in the Entomology Laboratory collection.

Table 2. Distributions of detected species in Turkey and Zoogeographical regions

Species	Distribution in Turkey	Zoogeographical Distribution
<i>Adrastus anatolicus</i>	1, 2, 4, 6, 7	ETR
<i>A. circassicus</i>	1	EWP
<i>A. montanus</i>	2, 3	EWP
<i>Aeoloderma crucifer</i>	6, 7	EWP, MA, ME, NA
<i>Aeolosomus rossi</i>	1, 4, 7	EWP, MA, ME
<i>Agriotes gurgistanus</i>	2, 3, 6	EWP, MA
<i>A. heydeni</i>	5, 6, 7	ETR
<i>A. infuscatus</i>	3	EWP, ME
<i>A. lineatus</i>	2, 3, 4, 7	EWP, AUST, NEA, MA, ME, SB
<i>A. modestus</i>	8	MA, ME
<i>A. paludum</i>	1, 3, 4, 6	EWP, ME
<i>A. propleuralis</i>	4	ETR
<i>A. proximus</i>	1, 2, 3, 4	EWP, ME, NA
<i>A. sputator</i>	1, 2, 3, 4, 5, 6, 7	EWP, NEA, MA, ME, SB, FE
<i>Agrypnus crenicollis</i>	2, 4	EWP, ME
<i>Ampedus cinnabarinus</i>	2, 4	EWP, MA, ME, SB, FE
<i>A. elegantulus</i>	1, 6	EWP, ME
<i>A. nigroflavus</i>	8	EWP, SB, MA
<i>A. ochropterus</i>	2	EWP
<i>A. platiai</i>	7	ETR
<i>A. pomanae</i>	8	EWP, MA, ME, SB, FE
<i>A. samedovi</i>	1	EWP
<i>A. sanguinolentus</i>	1	EWP, NA, MA, ME, SB, FE
<i>Athous (s.str.) haemorrhoidalis</i>	1, 4, 6	EWP, MA, ME
<i>A. (Haplathous) subfuscus</i>	1, 2	EWP, ME
<i>Cardiophorus (s.str.) analis</i>	1, 3, 4, 5, 7	ETR
<i>C. (s.str.) anticus</i>	1, 2, 7	EWP, ME
<i>C. (s.str.) discicollis</i>	1, 2, 6, 7	EWP, MA, ME
<i>C. (s.str.) dolini</i>	1, 3, 4, 6, 7	EWP
<i>C. (s.str.) frequens</i>	1, 7	ETR
<i>C. (s.str.) impressiventris</i>	1, 6, 7	ETR
<i>C. (s.str.) kindermanni</i>	7	EWP, ME
<i>C. (s.str.) levis</i>	4, 5, 7	ETR
<i>C. (s.str.) megathorax</i>	1, 2, 3, 4, 5, 6, 7	EWP, ME
<i>C. (s.str.) miniatocollis</i>	7	EWP, ME
<i>C. (s.str.) nigritissimus</i>	1, 2, 4, 5, 6, 7	EWP, MA, ME
<i>C. (s.str.) parvulus</i>	1, 2, 3, 4, 5, 6, 7	EWP
<i>C. (s.str.) ruficruris</i>	1, 6	EWP, ME, NA
<i>C. (s.str.) sacroatus</i>	1, 4, 5, 6, 7	EWP, MA, ME, NA
<i>C. (s.str.) vestigialis</i>	1, 2, 4, 6, 7	EWP, MA, ME, NA, SB, FE
<i>Dolopius marginatus</i>	8	EWP, MA, SB
<i>Dicronychus adanensis</i>	6, 7	ETR
<i>D. cinereus</i>	1, 2, 4, 6, 7	EWP, MA, ME
<i>D. iconiensis</i>	1, 2, 4, 5, 6, 7	ETR
<i>D. obscuripennis</i>	1, 2, 3, 7	ETR
<i>D. senaci</i>	2, 3, 4, 6	EWP
<i>Drapetes mordelloides</i>	8	EWP, MA, ME, SB, FE
<i>Drasterius bimaculatus</i>	1, 2, 3, 4, 5, 6, 7	EWP, MA, ME, NA
<i>Hemicrepidius hirtus</i>	6	EWP, ME
<i>Hem. nigritulus</i>	2	EWP, ME
<i>Idotarmoides anatolicus</i>	8	EWP
<i>Limonius minutus</i>	1	EWP, MA, ME
<i>Limoniscus elegans</i>	2, 4	ME
<i>Melanotus (s.str.) bajulus</i>	1, 2, 7	ME
<i>M. (s.str.) fraseri</i>	3, 6	ME
<i>M. (s.str.) fusciceps</i>	1, 3, 5, 6, 7	EWP, MA, ME
<i>Mulsanteus guillebeaui</i>	1, 2, 4, 6, 7	EWP, ME
<i>Nothodes parvulus</i>	3, 4	EWP, ME
<i>Peripontius crassus</i>	7	ME
<i>P. omisus</i>	1, 2, 4, 7	ME
<i>P. terminatus</i>	1, 6, 7	EWP, NA, ME
<i>Prosternon syriacum</i>	1, 4, 7	ME
<i>P. tessellatum</i>	2, 3, 4	EWP, MA, SB
<i>Quasimus minutissimus</i>	1, 2, 6	EWP, ME, SB
<i>Selatosomus (s.str.) amplicollis</i>	2, 4	EWP, ME
<i>S. (s.str.) latus</i>	1, 2, 3, 4, 7	EWP, MA, ME, SB, FE
<i>Synaptus filiformis</i>	1, 2, 4, 6, 7	EWP, MA, ME
<i>Zorochros dermestoides</i>	2, 4	EWP, NA
<i>Z. georgicus</i>	8	EWP
<i>Z. heyrovskyi</i>	8	ME
<i>Z. pilosellus</i>	8	EWP, MA, ME
<i>Z. stibicki</i>	1, 4	EWP

1: Central Anatolian region, **2:** Blacksea Region, **3:** Marmara Region, **4:** Eastern Anatolian Region, **5:** Southeastern Anatolian Region, **6:** Aegean Region, **7:** Mediterranean Region, **8:** First detailed species description (Kesdek et al., 2006; Gülpircin 2006; Mertlik, 2000; Merkl and Mertlik, 2005; Mertlik and Dusanek, 2006; Mertlik and Dusanek 2007; Platia 1989, 2003b, 2008; Platia and Gudenzi 1996a, 1998, 2000a, 2000b, 2002a, 2004a; Platia and Schimmel 1991; Schimmel 1990; Yüksel 1970) Zoogeographical distributions; **ETR:** Endemic for Turkey, **EWP:** European part of Western Palaearctic, **SB:** Siberia, **ME:** Middle East, **MA:** Middle Asia, **NA:** North Africa, **FE:** Far East, **NEA:** Nearctic region and **AUST:** Australian region (Cate, 2007).

2004a; Platia, Yıldırım and Kesdek 2007; Tarnawski 1995, 2000) and identifications were checked by Giuseppe Platia. Turkey and World distributions of species were taken from Cate (2007), Guglielmi and Platia (1985), Gülperçin and Tezcan (2009), Kabalak and Sert (2005), Kesdek et al. (2006), Laibner (2000), Mertlik and Dusanek (2006), Mertlik and Platia (2008), Platia (1994) and Platia and Gudenzi (2000a, 2002a). Classification system of the family Elateridae followed that of Mertlik and Platia (2008) except for the subfamily Lissominae for which we followed the concept of Laibner (2000) and Cate (2007). In the faunistic composition section, distributions of species in subfamilies and genera are shown (Figures 3 and 4) and species numbers of subfamilies and genera are compared between each other and species numbers of collected genera from the studied area are compared with known species numbers of genera recorded from Turkey. In the ecological properties of fauna section, specimen numbers of collected species, collecting habitats and methods, collecting months and vertical distributions of species (Figure 6) are given and assessed (Figures 5 and 6, Table 1). In the zoogeographical composition of fauna section, zoogeographical distributions and distributions in Turkey according to present literature of the identified species (Figures 7 and 8, Table 2) are given with information on endemic species. The Elateridae fauna of the studied area is compared with the Elateridae fauna of other geographical regions of Turkey. Zoogeographical distributions of identified species and the relationships between studied areas and zoogeographical regions are discussed.

Results and Discussion

Annotated Checklist of Elateridae Species of the Central Anatolian Region of Turkey

Subfamily: DENDROMETRINAE Gistel, 1856

Tribe: Athouini Candèze, 1859

Genus: Nothodes Le Conte, 1861

1. Nothodes parvulus (Panzer, 1799)

Material Examined: **Çankırı:** Bayramören, 40°57'20" N, 33°18'19"E, 936 m, 04.VI.2008, 1 specimen; **Kayseri:** Talas, 38°38'40"N, 35°36'17"E, 1424 m, 29.V.2007, 2 specimens; **Konya:** Beyşehir, 39°35'55"N, 31°26'49"E, 1124 m, 14.V.2005, 1 specimen; **Niğde:** Central County, 38°01'10"N, 35°01'09"E, 1573 m, 27.VI.2006, 1 specimen; **Yozgat:** Akdağmadeni, 39°43'28"N, 35°54'37"E, 1195 m, 12.VI.2007, 3 specimens; col. M. Kabalak.

Genus: Limonius Eschscholtz, 1829.

2. Limonius minutus Linnaeus, 1758

Material Examined: **Eskişehir:** Alpu 39°56'18"N, 31°08'34"E, 1515 m, 15.V.2007, 1 specimen; **Niğde:** Çamardı, 37°51'31"N, 34°57'30"E, 1580 m, 29.V.2005, 1 specimen; **Sivas:** Zara, 40°04'04"N, 37°43'39"E, 1626 m, 01.VI.2007, 1 specimen; col.M. Kabalak.

Genus: Limoniscus Reitter, 1905.

3. Limoniscus elegans (Buysson, 1891)

Material Examined: **Yozgat:** Çekerek, 40°08'43"N, 35°25'30"E, 945 m, 12.VI.2007, 1 specimen; col. M. Kabalak.

Genus: Athous Eschscholtz, 1829.

Subgenus: Athous Eschscholtz, 1829

4. Athous (s. str.) haemorrhoidalis (Fabricius, 1821)

Material Examined: **Aksaray:** Ortaköy, 38°44'54"N, 33°59'55"E, 1256 m, 25.IV.2006, 2 specimens; **Çankırı:** Bayramören, 40°57'20"N, 33°18'19"E, 936 m, 04.VI.2008, 3 specimens; **Eskişehir:** Central County, 39°57'06"N, 30°31'03"E, 1045 m, 05.VI.2006, 1 specimen; **Niğde:** Çamardı, 37°48'52"N, 34°59'35"E, 1434 m, 23.V.2008, 4 specimens; Ulukışla, 37°26'50"N, 34°36'57"E, 1780 m, 22.V.2008, 4 specimens; Çamardı, 37°52'43"N, 35°06'25"E, 1512 m, 23.V.2008, 3 specimens; **Sivas:** Divriği, 39°30'27"N, 38°7'32"E, 1405 m, 22.V.2006, 3 specimens; Central County, 39°24'17"N, 36°41'25"E, 1366 m, 23.V.2006, 12 specimens; Gemerek, 39°18'18"N, 35°56'48"E, 1353 m, 30.V.2007, 6 specimens; Suşehri, 40°03'47"N, 38°03'10"E, 1356 m, 02.VI.2007, 1 specimen; **Yozgat:** Çandır, 39°15'13"N, 35°34'03"E, 1264 m, 11.VI.2007, 1 specimen; col. M. Kabalak.

Subgenus: *Haplathous* Reitter, 1905

5. *Athous (H.) subfuscus* (O. F. Müller, 1764)

Material Examined: **Çankırı:** Ilgaz 41°02'07"N, 33°47'28"E, 1502 m, 04.VI.2006, 5 specimens; Ilgaz 41°04'22"N, 33°43'47"E, 1851 m, 22.VII.2006, 3 specimens; Ilgaz 41°04'22"N, 33°43'47"E, 1867 m, 05.VI.2008, 4 specimens; Ilgaz 41°02'03"N, 33°47'31"E, 1639 m, 05.VI.2008, 5 specimens; **Sivas:** Koyulhisar, 40°21'06"N, 37°49'58"E, 1730 m, 02.VI.2007, 3 specimens; col. M. Kabalak.

Tribe: *Hemicrepidiini* Champion, 1894

Genus: *Hemicrepidius* Germar, 1829.

6. *Hemicrepidius hirtus* (Herbst, 1784)

Material Examined: **Yozgat:** Central County, 39°44'33"N, 34°48'15"E, 1097 m,

20.VII.2005, 1 specimen; Çandır, 39°14'50"N, 35°33'07"E, 1253 m, 12.VII.2006, 1 specimen; Central County, 39°41'41"N, 34°50'58"E, 1135 m, 11.VI.2007, 1 specimen; col. M. Kabalak. **Eskişehir:** Central County, 39°35'53"N, 30°16'42"E, 886 m, 02.VII.2009, 1 specimen; col. Y. Turan.

7. *Hemicrepidius nigrutilus* (Reitter, 1890) (Fig. 5.7 a-b).

Material Examined: **Yozgat:** Sorgun 40°04'27"N, 35°14'41"E, 1442 m, 13.VII.2006, 1 specimen; col. M. Kabalak.

Tribe: *Ctenicerini* Fleutiaux, 1936

Genus: *Prosternon* Latreille, 1834

8. *Prosternon syriacum* (Buysson, 1891).

Material Examined: **Ankara:** Güdül 40°14'15"N, 32°15'40"E, 683 m, 09.VII.2003, 1 specimen; Kızılcahamam, 40°26'56"N, 32°50'41"E, 1464 m, 05.VIII.2008, 1 specimen; **Çankırı:** Ilgaz, 41°04'22"N, 33°43'47"E, 1851 m, 22.VII.2006, 2 specimens; **Eskişehir:** İnönü 39°47'18"N, 30°05'41"E, 1123 m, 31.VII.2006, 1 specimen; col. M. Kabalak; **Eskişehir:** Mihalicçık, 39°59'13"N, 31°20'32"E, 643 m, 30.VI.2009, 1 specimen; col. Y. Turan.

9. *Prosternon tessellatum* (Linnaeus, 1758)

Material Examined: **Çankırı:** Ilgaz, 41°02'07"N, 33°47'28"E, 1502 m, 05.VI.2008, 1 specimen; col. M. Kabalak.

Genus: *Selatosomus* Stephens, 1830

Subgenus: *Selatosomus* Stephens, 1830

10. *Selatosomus (s. str.) amplicollis* Dolin, 1982

Material Examined: **Niğde:** Ulukışla, 37°24'52"N, 34°33'55"E, 2341 m, 22.V.2008, 3 specimens; col. M. Kabalak.

11. *Selatosomus* (s. str.) *latus* (Fabricius, 1801)

Material Examined: **Nevşehir:** Ürgüp, 38°38'01"N, 34°53'52"E, 1151 m, 26.VI.2004, 1 specimen; **Yozgat:** Sorgun, 40°04'07"N, 35°15'23"E, 1545 m, 19.V.2008, 1 specimen; col. M. Kabalak.

Subfamily: ELATERINAE Leach, 1815

Tribe: Elaterini Leach, 1815

Genus: *Mulsanteus* Gozis, 1875

12. *Mulsanteus guillebaeui* (Mulsant and Godart, 1853)

Material Examined: **Ankara:** Yenimahalle, 39°57'58"N, 32°48'21"E, 885 m, 05.VIII.2002, col. N. Kocatepe, 1 specimen; **Nevşehir:** Gülşehir, 38°45'55"N, 34°36'00"E, 914 m, 06.VII.2006, 1 specimen; col. M. Kabalak.

Tribe: Pomachiliini Candèze, 1859.

Genus: *Idotarmonides* Agajev, 1985.

13. *Idotarmonides anatolicus* (Candèze, 1881)

Material Examined: **Ankara:** Kızılcahamam 40°16'15"N, 32°25'30"E, 1188 m, 28.VI.2003, 1 specimen; col. M. Kabalak.

Tribe: Synaptini Gistel, 1856.

Genus: *Peripontius* Gurjeva, 1979

14. *Peripontius crassus* (Buyson, 1906)

Material Examined: **Karaman:** Central County, 36°56'49"N, 33°02'20"E, 416 m, 28.V.2005, 6 specimens; Central County,

36°56'49"N, 33°02'20"E, 416 m, 22.IV.2006, 2 specimens; col. M. Kabalak.

15. *Peripontius omissus* (Buyson, 1889)

Material Examined: **Ankara:** Kazan 40°12'16"N, 32°34'47"E, 1064 m, 16.VI.2003, 5 specimens; **Eskişehir:** Mihaliççık 39°59'12"N, 31°20'33"E, 646 m, 04.VI.2006, 2 specimens; **Kayseri:** Yahyalı, 38°02'27"N, 35°24'22"E, 1443 m, 08.VII.2006, 1 specimen; Develi, 38°11'51"N, 35°53'45"E, 1481 m, 29.V.2007, 1 specimen; **Konya:** Ahırlı, 37°11'48"N, 32°04'10"E, 1360 m, 10.VI.2006, 1 specimen; Bozkır, 37°06'10"N, 32°18'16"E, 1260 m, 10.VI.2006, 1 specimen; Hadim, 37°00'44"N, 32°19'52"E, 1380 m, 05.V.2007, 1 specimen; **Niğde:** Çamardı, 37°40'79200"N, 35°00'69900"E, 1232 m, 3 specimens; 12.V.2007; col. M. Kabalak. **Eskişehir:** Mihalgazi, 39°56'54"N, 30°40'06"E, 1166 m, 01.VII.2009, 1 specimen; **Konya:** Seydişehir, 37°27'35"N, 31°43'53"E, 1470 m, 03.VI.2009, 1 specimen; col. Y. Turan.

16. *Peripontius terminatus* (Erichson, 1842)

Material Examined: **Çankırı:** Şabanözü, 40°31'07"N, 33°26'34"E, 1187 m, 22.VII.2006, 2 specimens; **Konya:** Derebucak, 37°25'48"N, 31°30'52"E, 1253 m, 15.V.2005, 1 specimen; Bozkır, 37°06'10"N, 32°18'16"E, 1260 m, 10.VI.2006, 1 specimen; Hadim, 37°00'44"N, 32°19'52"E, 1380 m, 05.V.2007, 7 specimens; col. M. Kabalak.

Genus: *Adrastus* Eschscholtz, 1829

17. *Adrastus anatolicus* Platia and Schimmel, 1991

Material Examined: **Aksaray:** Güzelyurt,

38°14'20"N, 34°16'47"E, 1324 m, 28.VI.2004, 2 specimens; Güzelyurt, 38°16'03"N, 34°17'16"E, 1194 m, 28.VI.2004, 1 specimen; **Kırşehir:** Mucur, 39°00'41"N, 34°28'19"E, 1071 m, 26.VI.2006; 1 specimen; col. T. Türkeş. **Aksaray:** Güzelyurt, 38°15'51"N, 34°17'25"E, 1197 m, 13.VI.2006, 43 specimens; **Ankara:** Kazan, 40°12'16"N, 32°34'47"E, 1064 m, 16.VI.2003, 7 specimens; Kızılcahamam, 40°20'00"N, 32°42'03"E, 971 m, 17.VI.2003, 1 specimen; Nallıhan, 40°13'53"N, 31°20'27"E, 658 m, 23.VI.2003, 9 specimens; Çubuk, 40°18'54"N, 32°55'46"E, 1072 m, 25.VI.2003, 5 specimens; Kızılcahamam, 40°18'43"N, 32°28'04"E, 792 m, 28.VI.2003, 3 specimens; Çamlıdere, 40°28'20"N, 32°20'45"E, 1037 m, 29.VI.2003, 1 specimen; Kızılcahamam, 40°41'00"N, 32°43'46"E, 1563 m, 10.VII.2003, 2 specimens; Kızılcahamam, 40°35'04"N, 32°39'41"E, 1068 m, 10.VII.2003, 44 specimens; **Çankırı:** Central County, 40°33'55"N, 33°33'25"E, 788 m, 03.VI.2006, 1 specimen; Ilgaz, 40°56'51"N, 33°39'45"E, 945 m, 22.VII.2006, 5 specimens; **Eskişehir:** Günyüzü, 39°20'41"N, 31°50'09"E, 859 m, 06.VII.2003, 1 specimen; **Kayseri:** Yeşilhisar, 38°21'34"N, 34°58'53"E, 1324 m, 07.VII.2006, 52 specimens; **Kırıkkale:** Çelebi, 39°28'37"N, 33°32'18"E, 1128 m, 22.VI.2007, 3 specimens; **Kırşehir:** Akpınar, 39°26'54"N, 33°58'58"E, 1157 m, 05.VII.2006, 1 specimen; Kaman, 39°27'47"N, 33°36'31"E, 984 m, 22.VI.2007, 1 specimen; **Nevşehir:** Central County, 38°35'45"N, 34°43'05"E, 1248 m, 07.VII.2006, 1 specimen; Ürgüp, 38°42'55"N, 35°00'31"E, 1077 m, 24.VI.2007, 9 specimens; Central County, 38°35'49"N, 34°43'05"E, 1254 m, 25.VI.2007, 4 specimens; **Niğde:** Çamardı, 37°52'43"N, 35°06'15"E, 1556 m, 21.VI.2006, 11 specimens; Çamardı, 37°48'40"N, 34°59'40"E, 1425 m,

21.VI.2006, 7 specimens; **Sivas:** Gürün, 38°45'29"N, 37°13'58"E, 1339 m, 31.V.2007, 1 specimen; **Yozgat:** Central County, 39°44'33"N, 34°48'15"E, 1241 m, 20.VII.2005, 14 specimens; Sorgun, 39°36'23"N, 35°15'25"E, 1101 m, 11.VI.2007, 3 specimens; Central County, 39°41'41"N, 34°50'58"E, 1135 m, 11.VI.2007, 2 specimens; Central County, 39°56'14"N, 34°42'33"E, 1206 m, 13.VI.2007, 1 specimen; col. M. Kabalak. **Aksaray:** Güzelyurt, 38°15'13"N, 34°18'07"E, 1266 m, 15.VI.2009, 2 specimens; Güzelyurt, 38°16'03"N, 34°17'16"E, 1194 m, 22.VI.2009, 14 specimens; **Ankara:** Kalecik, 40°11'41"N, 33°20'00"E, 1049 m, 11.VII.2008, 1 specimen; **Eskişehir:** Mihaliççık, 39°59'13"N, 31°20'32"E, 643 m, 30.VI.2009, 5 specimens; **Kırşehir:** Central County, 39°10'05"N, 33°55'39"E, 1039 m, 28.VI.2009, 3 specimens; **Nevşehir:** Ürgüp, 38°43'59"N, 34°55'50"E, 948 m, 24.VI.2009, 2 specimens; **Sivas:** Hafik, 39°55'12"N, 37°23'44"E, 1322 m, 18.VII.2009, 10 specimens; col. Y. Turan.

18. *Adrastus circassicus* Reitter, 1896

Material Examined: **Çankırı:** Kurşunlu, 40°52'03"N, 33°12'49"E, 1423 m, 27.VII.2005, 4 specimens; **Yozgat:** Central County, 39°38'07"N, 34°55'25"E, 1027 m, 12.VII.2006, 1 specimen; Akdağmadeni, 39°39'04"N, 35°57'37"E, 1628 m, 14.VII.2006, 1 specimen; col. M. Kabalak.

19. *Adrastus montanus* (Scopoli, 1763)

Material Examined: **Ankara:** Gölbaşı, 39°35'56"N, 32°50'45"E, 1096 m, 24.VI.2003, 1 specimen; col. M. Kabalak.

Genus: *Synaptus* Eschscholtz, 1829

20. *Synaptus filiformis* (Fabricius, 1781)

Material Examined: **Aksaray:** Güzelyurt, 38°15'51"N, 34°17'25"E, 1197 m, 19.VI.2006, 18 specimens; Central County, 38°21'05"N, 34°13'34"E, 1116 m, 19.VI.2006, 1 specimen; Central County, 38°23'54"N, 34°07'21"E, 1071 m, 19.VI.2006, 2 specimens; Güzelyurt, 38°15'51"N, 34°17'27"E, 1301 m, 11.V.2007, 3 specimens; **Ankara:** Ayaş, 40°11'59"N, 32°27'51"E, 1036 m, 30.V.2004, 1 specimen; Ayaş, 40°06'03"N, 32°24'22"E, 1039 m, 30.V.2004, 5 specimens; **Çankırı:** Şabanözü, 40°31'07"N, 33°26'34"E, 1187 m, 22.VII.2006, 2 specimens; Şabanözü, 40°29'50"N, 33°24'38"E, 1178 m, 05.VI.2008, 6 specimens; Şabanözü, 40°24'13"N, 33°15'11"E, 923 m, 05.VI.2008, 1 specimen; **Eskişehir:** Mihaliççık, 39°59'12"N, 31°20'33"E, 646 m, 04.VI.2006, 2 specimens; Central County, 39°57'06"N, 30°31'03"E, 1045 m, 05.VI.2006, 1 specimen; Sarıcakaya, 39°57'02"N, 30°40'25"E, 1154 m, 30.VII.2006, 2 specimens; **Karaman:** Central County, 37°04'49"N, 33°05'31"E, 1285 m, 28.V.2005, 1 specimen; Central County, 36°47'04"N, 32°53'55"E, 1742 m, 28.V.2005, 2 specimens; Central County, 36°56'49"N, 33°02'20"E, 408 m, 28.V.2005, 1 specimen; Ermenek, 36°42'18"N, 32°57'18"E, 1483 m, 11.VI.2006, 2 specimens; Central County, 37°09'06"N, 33°33'07"E, 1206 m, 12.VI.2006, 4 specimens; **Kayseri:** Yeşilhisar, 38°21'34"N, 34°58'53"E, 1324 m, 07.VII.2006, 2 specimens; Yahyalı, 38°02'27"N, 35°24'22"E, 1443 m, 08.VII.2006, 1 specimen; Sarız, 38°21'55"N, 36°26'35"E, 1500 m, 09.VII.2006, 4 specimens; Özvatan, 39°5'17"N, 35°48'47"E, 1107 m, 11.VII.2006, 13 specimens; Central County, 38°47'57"N, 35°14'40"E, 1004 m, 12.VII.2006, 6 specimens; Sarioğlan,

39°01'35"N, 36°03'27"E, 1229 m, 10.VII.2006, 3 specimens; Felahiye, 39°7'35.34"N, 35°38'7.86"E, 1401 m, 11.VII.2006, 7 specimens; Yahyalı, 38°03'15"N, 35°23'37"E, 1362 m, 28.V.2007, 1 specimen; Develi, 38°11'51"N, 35°53'45"E, 1481 m, 29.V.2007, 1 specimen; İncesu, 38°37'53"N, 35°09'28"E, 1117 m, 24.VI.2007, 4 specimens; **Kırşehir:** Akpınar, 39°21'47"N, 34°00'37"E, 1147 m, 04.VII.2006, 20 specimens; Akpınar, 39°26'54"N, 33°58'58"E, 1157 m, 05.VII.2006, 1 specimen; Akpınar, 39°26'43"N, 34°05'50"E, 1309 m, 05.VII.2006, 10 specimens; Central County, 39°30'33"N, 34°09'37"E, 1076 m, 09.VI.2007, 5 specimens; Central County, 38°18'15"N, 34°06'07"E, 1083 m, 09.VI.2007, 49 specimens; Central County, 39°19'18"N, 34°06'39"E, 1115 m, 22.VI.2007, 1 specimen; **Konya:** Akşehir, 38°18'24"N, 31°29'11"E, 1063 m, 13.V.2005, 6 specimens; Seydişehir, 37°23'33"N, 31°59'26"E, 1096 m, 18.IV.2006, 1 specimen; Derebucak, 37°25'48"N, 31°30'52"E, 1253 m, 15.V.2005, 5 specimens; Seydişehir, 37°27'56"N, 31°44'23"E, 1355 m, 15.V.2005, 2 specimens; Hadim, 37°06'28"N, 32°27'20"E, 1229 m, 27.V.2005, 2 specimens; Akşehir, 38°18'17"N, 31°27'57"E, 1081 m, 09.VI.2006, 3 specimens; Ilgın, 38°05'06"N, 31°49'32"E, 1193 m, 13.VI.2006, 5 specimens; Yunak, 38°55'03"N, 32°05'25"E, 926 m, 03.V.2007, 1 specimen; Sarayönü, 38°11'58"N, 32°25'49"E, 1147 m, 08.V.2007, 1 specimen; Hadim, 37°03'04"N, 32°35'29"E, 851 m, 06.V.2007, 1 specimen; **Nevşehir:** Ürgüp, 38°36'04"N, 34°54'24"E, 1092 m, 07.VII.2006, 1 specimen; **Niğde:** Çamardı, 37°51'31"N, 34°57'30"E, 1580 m, 15.VII.2005, 13 specimens; Ulukışla, 37°27'10"N, 34°38'21"E, 1638 m, 20.VI.2006, 6 specimens; Çamardı, 37°42'50"N, 35°01'17"E, 1299 m,

- 21.VI.2006, 1 specimen; Çamardı, 37°48'40"N, 34°59'40"E, 1425 m, 21.VI.2006, 6 specimens; Çamardı, 37°42'49"N, 35°01'18"E, 1308 m, 23.V.2008, 4 specimens; Çamardı, 37°48'52"N, 34°59'35"E, 1434 m, 23.V.2008, 4 specimens; Central County, 38°00'46"N, 35°01'42"E, 1599 m, 23.V.2008, 2 specimens; **Sivas:** Doğanşar, 40°10'09"N, 37°34'21"E, 1385 m, 21.VII.2005, 6 specimens; Koyulhisar, 40°14'22"N, 37°58'21"E, 763 m, 21.VII.2005, 1 specimen; Suşehri, 40°03'01"N, 38°02'47"E, 1469 m, 21.VII.2005, 1 specimen; Divriği, 39°30'27"N, 38°07'32"E, 1405 m, 22.V.2006, 5 specimens; Gürün, 38°45'29"N, 37°13'59"E, 1364 m, 22.V.2006, 15 specimens; Central County, 39°38'28"N, 37°00'29"E, 1338 m, 22.V.2006, 6 specimens; Gemerek, 39°17'12"N, 36°00'25"E, 1187 m, 23.V.2006, 4 specimens; Yıldızeli, 39°49'51"N, 36°42'10"E, 1338 m, 24.V.2006, 2 specimens; Gemerek, 39°18'18"N, 35°56'48"E, 1345 m, 23.V.2006, 2 specimens; Şarkışla, 39°35'32"N, 36°09'38"E, 1458 m, 14.VII.2006, 1 specimen; Yıldızeli, 39°49'44"N, 36°42'15"E, 1341 m, 15.VII.2006, 2 specimens; İmranlı, 39°53'07"N, 38°01'52"E, 1568 m, 17.VII.2006, 5 specimens; Zara, 39°51'46"N, 37°45'40"E, 1337 m, 17.VII.2006, 2 specimens; Gürün, 38°45'29"N, 37°13'58"E, 1339 m, 01.V.2007, 13 specimens; Zara, 39°55'50"N, 37°50'26"E, 1620 m, 02.VI.2007, 1 specimen; Şarkışla, 39°34'27"N, 36°14'36"E, 1351 m, 03.VI.2007, 1 specimen; Yıldızeli, 39°49'38"N, 36°42'21"E, 1334 m, 04.VI.2007, 8 specimens; **Yozgat:** Yerköy, 39°36'47"N, 34°30'47"E, 760 m, 19.VII.2005, 1 specimen; Central County, 39°44'33"N, 34°48'15"E, 1241 m, 20.VII.2005, 1 specimen; Akdağmadeni, 39°40'51"N, 35°46'23"E, 1244 m, 20.VII.2005, 4 specimens; Akdağmadeni, 39°39'28"N, 36°00'43"E, 1380 m, 20.VII.2005, 5 specimens; Çayıralan, 39°17'05"N, 35°36'29"E, 1311 m, 12.VII.2006, 4 specimens; Central County, 39°38'7.68"N, 34°55'25.14"E, 1027 m, 12.VII.2006, 9 specimens; Central County, 39°32'53"N, 34°57'48"E, 953 m, 13.VII.2006, 4 specimens; Sarıkaya, 39°33'31"N, 35°34'00"E, 1145 m, 14.VII.2006, 2 specimens; Central County, 39°41'25"N, 34°38'10"E, 962 m, 10.VI.2007, 5 specimens; Çandır, 39°15'13"N, 35°34'03"E, 1264 m, 11.VI.2007, 13 specimens; Central County, 39°34'09"N, 34°59'41"E, 952 m, 11.VI.2007, 22 specimens; Akdağmadeni, 39°43'28"N, 35°54'37"E, 1195 m, 12.VI.2007, 2 specimens; col. M. Kabalak. **Aksaray:** Güzelyurt, 38°15'13"N, 34°18'07"E, 1266 m, 15.VI.2009, 11 specimens; Güzelyurt, 38°16'03"N, 34°17'16"E, 1196 m, 22.VI.2009, 2 specimens; **Ankara:** Beypazarı, 40°19'07"N, 31°59'56"E, 1135 m, 09.VII.2008, 1 specimen; Elmadağ, 39°44'03"N, 33°08'09"E, 1245 m, 30.V.2009, 2 specimens; **Eskişehir:** Mihalgazi, 39°56'54"N, 30°40'06"E, 1166 m, 01.VII.2009, 2 specimens; Central County, 39°35'53"N, 30°16'42"E, 886 m, 02.VII.2009, 1 specimen; **Karaman:** Central County, 37°09'12"N, 33°26'09"E, 1112 m, 12.VI.2009, 1 specimen; Başyayla, 36°45'15"N, 32°40'32"E, 1301 m, 13.VI.2009, 1 specimen; Central County, 36°50'38"N, 32°55'01"E, 1652 m, 13.VI.2009, 3 specimens; **Kırşehir:** Kaman, 39°12'49"N, 33°52'05"E, 1059 m, 28.VI.2009, 1 specimen; **Konya:** Akören, 37°31'42"N, 32°22'30"E, 1076 m, 04.VI.2009, 2 specimens; Ilgın, 38°03'37"N, 31°50'03"E, 1225 m, 05.VI.2009, 1 specimen; Akşehir, 38°18'18"N, 31°27'53"E, 1087 m, 05.VI.2009, 1 specimen; **Nevşehir:** Acıgöl, 38°41'22"N, 34°21'07"E, 1084 m, 25.VI.2009, 2 specimens; **Sivas:** Yıldızeli,

39°50'59"N, 36°42'51"E, 1325 m, 17.VII.2009, 1 specimen; Hafik, 39°55'12"N, 37°23'44"E, 1322 m, 18.VII.2009, 1 specimen; Doğanşar, 40°15'19"N, 37°32'45"E, 1069 m, 18.VII.2009, 2 specimens; Hafik, 40°02'02"N, 37°28'13"E, 1543 m, 18.VII.2009, 2 specimens; col. Y. Turan.

Genus: *Ampedus* Dejean, 1833

21. *Ampedus cinnaberinus* (Eschscholtz, 1829)

Material Examined: **Aksaray:** Gülağaç, 38°21'04"N, 34°13'32"E, 1056 m, 12.V.2007, 7 specimens; **Eskişehir:** Sivrihisar, 39°22'55"N, 31°29'28"E, 916 m, 14.V.2007, 2 specimens; **Karaman:** Central County, 37°07'13"N, 33°04'21"E, 1156 m, 06.V.2007, 4 specimens; **Kırıkkale:** Çelebi, 39°28'37"N, 33°32'18"E, 1128 m, 22.VI.2007, 6 specimens; **Konya:** Ilgın, 38°08'33"N, 31°48'34"E, 1069 m, 04.V.2007, 7 specimens; **Yozgat:** Akdağmadeni, 39°49'16"N, 35°53'50"E, 1219 m, 06.V.2006, 5 specimens; col. M. Kabalak.

22. *Ampedus elegantulus* (Schönherr, 1817)

Material Examined: **Aksaray:** Güzelyurt, 38°16'27"N, 34°22'42"E, 1538 m, 11.V.2007, 3 specimens; **Çankırı:** Central County, 40°38'05"N, 33°36'28"E, 754 m, 05.VI.2008, 1 specimen; **Karaman:** Central County, 37°12'03"N, 33°24'10"E, 1069 m, 07.V.2007, 1 specimen; **Konya:** Derbent, 37°53'00"N, 31°59'42"E, 1305 m, 04.V.2007, 3 specimens; col. M. Kabalak.

23. *Ampedus nigroflavus* (Goeze, 1777)

Material Examined: **Yozgat:** Şefaati, 39°30'19"N, 34°44'34"E, 915 m, 05.V.2006, 1 specimen; col. M. Kabalak.

24. *Ampedus ochropterus* Germar, 1844

Material Examined: **Çankırı:** Ilgaz, 41°03'57"N, 33°44'47"E, 1866 m, 05.VI.2008, 1 specimen; col. M. Kabalak.

25. *Ampedus platiai* Schimmel, 1990

Material Examined: **Konya:** Selçuklu, 37°55'18"N, 32°16'17"E, 1275 m, 04.V.2007, 2 specimens; **Yozgat:** Central County, 39°38'07"N, 34°55'21"E, 1040 m, 04.V.2006, 5 specimens; Çayıralan, 39°17'06"N, 35°36'30"E, 1309 m, 05.V.2006, 1 specimen; col. M. Kabalak.

26. *Ampedus pomonae* (Stephens, 1830)

Material Examined: **Yozgat:** Çekerek, 40°05'13"N, 35°35'14"E, 775 m, 06.V.2006, 2 specimens; col. M. Kabalak.

27. *Ampedus samedovi* Dolin and Agajev, 1983

Material Examined: **Aksaray:** Ortaköy, 38°44'54"N, 33°59'55"E, 1256 m, 25.IV.2006, 5 specimens; **Kayseri:** Felahiye, 39°07'16"N, 35°37'47"E, 1388 m, 04.V.2006, 5 specimens; **Kırıkkale:** Çelebi, 39°31'09"N, 33°29'56"E, 895 m, 07.V.2006, 6 specimens; Keskin, 39°46'45"N, 33°55'17"E, 772 m, 07.V.2006, 1 specimen; **Nevşehir:** Central County, 38°37'04"N, 34°47'15"E, 1329 m, 30.IV.2006, 2 specimens; **Niğde:** Central County, 38°00'52"N, 35°01'30"E, 1589 m, 12.V.2007, 3 specimens; **Sivas:** Central County, 39°38'28"N, 37°00'29"E, 1338 m,

22.V.2006, 4 specimens; Zara, 40°00'01"N, 37°43'49"E 1559m 1 specimen 01.VI.2007; **Yozgat:** Central County 39°37'44"N 34°52'07"E, 1149 m, 05.V.2006, 2 specimens; col. M. Kabalak.

28. *Ampedus sanguinolentus*
(Schränk, 1776)

Material Examined: **Aksaray:** Ortaköy, 38°44'54"N, 33°59'55"E, 1256 m, 25.IV.2006, 2 specimens; Ortaköy, 38°44'53"N, 33°59'56"E, 1257 m, 11.V.2007, 2 specimens; **Eskişehir:** Mahmudiye, 39°33'26"N, 30°50'37"E, 917 m, 16.V.2007, 1 specimen; **Karaman:** Central County, 37°12'03"N, 33°24'10"E, 1069 m, 07.V.2007, 2 specimens; **Kayseri:** Tomarza, 38°24'27"N, 35°57'5"E, 1370 m, 02.V.2006, 2 specimens; Özvatan, 39°08'03"N, 35°38'57"E, 1414 m, 30.V.2007, 1 specimen; **Konya:** Ilgın, 38°11'00"N, 31°50'45"E, 1092 m, 17.IV.2006, 1 specimen; Sarayönü, 38°11'58"N, 32°25'49"E, 1147 m, 08.V.2007, 1 specimen; **Niğde:** Central County, 38°00'52"N, 35°01'30"E, 1589 m, 12.V.2007, 3 specimens; Çamardı, 37°48'52"N, 34°59'35"E, 1434 m, 23.V.2008, 1 specimen; **Sivas:** Central County, 39°38'28"N, 37°0'29"E, 1338 m, 22.V.2006, 1 specimen; Yıldızeli, 39°49'51"N, 36°42'10"E, 1338 m, 24.V.2006, 1 specimen; Yıldızeli, 39°49'51"N, 36°42'10"E, 1338 m, 24.V.2006, 3 specimens; **Yozgat:** Şefaattli, 39°30'19"N, 34°44'34"E, 915 m. 05.V.2006, 1 specimen; Central County, 39°37'44"N, 34°52'7"E. 1149 m, 05.V.2006, 1 specimen; Çandır, 39°15'13"N, 35°34'03"E, 1264 m, 11.VI.2007, 1 specimen; col. M. Kabalak.

Tribe: Agriotini Champion, 1894

Genus: *Dalopius* Eschscholtz, 1829

29. *Dalopius marginatus* (Linnaeus, 1758)

Material Examined: **Sivas:** Gemerek, 39°18'18"N, 35°56'48"E, 1345 m, 23.V.2006, 2 specimens; Gemerek. 39°28'40"N, 35°57'59"E, 1809 m, 03.VI.2007, 6 specimens; col. M. Kabalak.

Genus: *Agriotes* Eschscholtz, 1829

30. *Agriotes gurgistanus* (Faldermann, 1835)

Material Examined: **Kayseri:** Pınarbaşı, 38°48'41"N, 35°58'37"E, 1609 m, 20.VII.03, 3 specimens; **Yozgat:** Saraykent, 39°40'23"N, 35°30'29"E, 1145 m, 18.VII.2003, 1 specimen; col. N. Kocatepe; **Kayseri:** Sarioğlan, 39°09'38"N, 35°51'41"E, 1398 m, 21.VII.09, 1 specimen; col. Y. Turan.

31. *Agriotes heydeni* Schwarz, 1891

Material Examined: **Sivas:** Central County, 39°41'57"N, 37°00'33"E, 1255 m, 20.VII.2005, 13 specimens; Central County, 39°41'57"N, 37°00'33"E, 1255 m, 21.VII.2005, 13 specimens; Central County, 39°41'57"N, 37°00'33"E, 1255 m, 15.VII.2006, 8 specimens; col. M. Kabalak.

32. *Agriotes infuscatus* Desbrochers des Loges, 1870

Material Examined: **Ankara:** Çubuk, 40°57'38"N, 33°06'32"E, 1085 m, 13.VI.2008, 1 specimen; **Çankırı:** Ilgaz, 41°02'03"N, 33°47'31"E, 1639 m, 05.VI.2008, 1 specimen; **Kayseri:** Özvatan, 39°08'03"N, 35°38'57"E, 1414 m, 30.V.2007, 1 specimen; col. M. Kabalak.

33. *Agriotes lineatus* (Linnaeus, 1767)

Material Examined: **Ankara:** Kızılcahamam, 40°34'58"N, 32°39'44"E, 1067 m, 10.VII.2003, 8 specimens; col. M. Kabalak.

34. *Agriotes modestus* Kiesenwetter, 1858

Material Examined: **Kayseri:** Develi, 38°23'21"N, 35°21'52"E, 1075 m, 12.IV.2003, 6 specimens; col. M. Kabalak.

35. *Agriotes paludum* Kiesenwetter, 1859

Material Examined: **Ankara:** Beytepe 39°51'57"N, 32°44'25"E, 1050 m, 18.V.1995, col. H. Alakoç, 1 specimen. **Aksaray:** Ortaköy, 38°44'54"N, 33°59'55"E, 1256 m, 19.VI.2006, 1 specimen; **Ankara:** Çankaya, 39°51'57"N, 32°44'25"E, 1050 m, 25.VI.2002, 1 specimen; Çankaya, 39°52'40"N, 32°43'49"E, 1050 m, 11.VII.2002, 1 specimen; Elmadağ, 39°52'55"N, 33°16'38"E, 981 m, 15.V.2003, 7 specimens; Gündül, 40°09'16"N, 32°14'06"E, 1036 m, 24.V.2003, 2 specimens; Gündül, 40°16'52"N, 32°07'17"E, 844 m, 24.V.2003, 15 specimens; Haymana, 39°26'03"N, 32°27'10"E, 1198 m, 25.V.2003, 1 specimen; Evren, 38°59'39"N, 33°43'44"E, 1150 m, 28.V.2003, 16 specimens; Akyurt, 40°08'45"N, 33°14'42"E, 1179 m, 30.V.2003, 3 specimens; Beypazarı, 40°19'12"N, 32°02'22"E, 1193 m, 07.VI.2003, 1 specimen; Elmadağ, 39°58'21"N, 33°09'37"E, 1123 m, 08.VI.2003, 1 specimen; Yenimahalle, 40°07'50"N, 32°45'41"E, 1084 m, 16.VI.2003, 2 specimens; Kazan, 40°12'16"N, 32°34'47"E, 1064 m, 16.VI.2003, 7 specimens; Kızılcahamam, 40°20'00"N, 32°42'02"E, 971 m, 17.VI.2003, 33 specimens; Polatlı, 39°22'39"N, 32°06'52"E, 862 m, 18.VI.2003, 1 specimen; Polatlı, 39°43'27"N, 32°05'00"E, 838 m, 18.VI.2003,

1 specimen; Polatlı, 39°26'55"N, 32°07'21"E, 816 m, 18.VI.2003, 9 specimens; Nallıhan, 40°17'02"N, 31°28'22"E, 957 m, 23.VI.2003, 30 specimens; Çubuk, 40°18'53"N, 32°55'46"E, 1073 m, 25.VI.2003, 21 specimens; Kızılcahamam, 40°18'44"N, 32°28'09"E, 795 m, 28.VI.2003, 4 specimens; Gündül, 40°05'51"N, 32°15'04"E, 673 m, 09.VII.2003, 3 specimens; Mamak, 39°56'39"N, 33°02'08"E, 997 m, 25.VII.2003, 7 specimens; Gündül, 40°10'55"N, 32°20'19"E, 1007 m, 30.V.2004, 1 specimen; Kalecik, 40°14'24"N, 33°27'28"E, 842 m, 09.V.2006, 8 specimens; Kalecik, 40°11'28"N, 33°19'52"E, 1049 m, 09.V.2006, 2 specimens; Çankaya, 39°52'40"N, 32°43'49"E, 1050 m, 22.IV.2008, 35 specimens; **Çankırı:** Ilgaz, 40°56'51"N, 33°39'45"E, 945 m, 22.VII.2006, 1 specimen; Ilgaz, 40°53'15"N, 33°30'22"E, 947 m, 27.VII.2005, 2 specimens; Şabanözü, 40°24'13"N, 33°15'11"E, 923 m, 05.VI.2008, 3 specimens; **Eskişehir:** Günyüzü, 39°20'38"N, 31°50'04"E, 873 m, 06.VII.2003, 1 specimen; Mihaliççık, 39°59'12"N, 31°20'33"E, 646 m, 04.VI.2006, 6 specimens; Seyitgazi, 39°28'50"N, 30°39'42"E, 1000 m, 05.VI.2006, 1 specimen; Günyüzü, 39°21'15"N, 31°50'38"E, 834 m, 29.VII.2006, 1 specimen; Seyitgazi, 39°21'26"N, 30°47'04"E, 996 m, 29.VII.2006, 2 specimens; İnönü, 39°49'15"N, 30°10'06"E, 818 m, 30.VII.2006, 1 specimen; Günyüzü, 39°10'04"N, 31°38'47"E, 847 m, 13.V.2007, 1 specimen; Seyitgazi, 39°28'50"N, 30°39'42"E, 1000 m, 14.V.2007, 2 specimens; Seyitgazi, 39°21'26"N, 30°47'04"E, 996 m, 16.V.2007, 1 specimen; Mihaliççık, 39°59'12"N, 31°20'33"E, 646 m, 04.VI.2006, 23 specimens; **Karaman:** Ermenek, 37°04'49"N, 33°05'31"E, 1285 m, 28.V.2005, 1 specimen; Central County, 37°09'06"N, 33°33'07"E, 1206 m, 12.VI.2006, 2 specimens; Central County, 37°07'13"N, 33°04'21"E, 1156 m, 06.V.2007, 16 specimens; Central County,

37°12'03"N, 33°24'10"E, 1069 m, 07.V.2007, 1 specimen; **Kayseri:** Central County, 38°50'57"N, 36°19'40"E 1682 m, 12.VII.2006, 3 specimens; Central County, 38°55'10"N, 35°04'59"E, 1210 m, 27.V.2007, 4 specimens; Felahiye, 39°03'42"N, 35°33'00"E, 1225 m, 30.V.2007, 2 specimens; Özvatan, 39°08'03"N, 35°38'57"E, 1414 m, 30.V.2007, 1 specimen; İncesu, 38°37'53"N, 35°09'28"E, 1117 m, 24.VI.2007, 17 specimens; **Kırıkkale:** Keskin, 39°46'45"N, 33°55'17"E, 772 m, 07.V.2006, 7 specimens; Sulakyurt, 40°19'24"N, 33°47'38"E, 571 m, 07.V.2006, 1 specimen; Çelebi, 39°28'37"N, 33°32'18"E, 1128 m, 22.VI.2007, 2 specimens; **Kırşehir:** Kaman, 39°25'59"N, 33°45'20"E, 974 m, 09.VI.2007, 2 specimens; Central County, 39°18'15"N, 34°06'07"E, 1083 m, 09.VI.2007, 2 specimens; **Konya:** Akşehir, 38°26'50"N, 31°30'58"E, 952 m, 13.V.2005, 17 specimens; Akşehir, 38°18'24"N, 31°29'11"E, 1063 m, 13.V.2005, 1 specimen; Doğanhisar, 38°09'26"N, 31°39'41"E, 1196 m, 14.V.2005, 1 specimen; Beyşehir, 39°35'55"N, 31°26'49"E, 1124 m, 14.V.2005, 34 specimens; Seydişehir, 37°27'56"N, 31°44'23"E, 1355 m, 15.V.2005, 5 specimens; Tuzlukçu, 38°26'31"N, 31°39'53"E, 1002 m, 16.IV.2006, 4 specimens; Ilgın, 38°16'23"N, 31°42'25"E, 1101 m, 17.IV.2006, 5 specimens; Beyşehir, 37°38'27"N, 31°37'44"E, 1128 m, 18.IV.2006, 1 specimen; Seydişehir, 37°23'33"N, 31°59'26"E, 1096 m, 18.IV.2006, 3 specimens; Akşehir, 38°18'17"N, 31°27'57"E 1081 m, 09.VI.2006, 6 specimens; Bozkır, 37°06'10"N, 32°18'16"E, 1260 m, 10.VI.2006, 2 specimens; Selçuklu, 37°55'20"N, 32°16'12"E, 1269 m, 13.VI.2006, 5 specimens; Ilgın, 38°05'06"N, 31°49'32"E, 1193 m, 13.VI.2006, 17 specimens; Akşehir, 38°26'57"N, 31°31'02"E, 967 m, 03.V.2007, 1 specimen; Hadim, 37°00'44"N, 32°19'52"E,

1380 m, 05.V.2007, 1 specimen; Hadim, 37°03'04"N, 32°35'29"E, 851 m, 06.V.2007, 3 specimens; Sarayönü, 38°11'58"N, 32°25'49"E, 1147 m, 08.V.2007, 1 specimen; **Nevşehir:** Gülşehir, 38°45'49"N, 34°35'43"E, 949 m, 29.IV.2006, 1 specimen; Ürgüp, 38°42'55"N, 35°00'31"E, 1077 m, 24.VI.2007, 8 specimens; Ürgüp, 38°33'39"N, 34°55'18"E, 1169 m, 24.VI.2007, 9 specimens; **Niğde:** Ulukışla, 37°26'50"N, 34°36'57"E, 1780 m, 22.V.2008, 2 specimens; **Sivas:** Suşehri, 40°17'17"N, 38°09'52"E, 966 m, 16.VII.2006, 2 specimens; Gürün, 38°45'29"N, 37°13'58"E, 1339 m, 31.V.2007, 3 specimens; Divriği, 39°17'26"N, 38°01'43"E, 1185 m, 01.VI.2007, 5 specimens; Suşehri, 40°15'40"N, 38°09'27"E, 816 m, 02.VI.2007, 8 specimens; **Yozgat:** Central County, 39°38'41"N, 34°54'58"E, 1034 m, 19.VII.2005, 21 specimens; Central County, 39°44'33"N, 34°48'15"E, 1097 m, 20.VII.2005, 10 specimens; Central County, 39°38'07"N, 34°55'21"E, 1040 m, 04.V.2006, 1 specimen; Şefaati, 39°30'19"E, 34°44'34"E, 915 m, 05.V.2006, 2 specimens; Çekerek, 40°05'13"N, 35°35'14"E, 775 m, 06.V.2006, 2 specimens; Şefaati, 39°31'46"N, 34°52'59"E, 958 m, 13.VII.2006, 3 specimens; Şefaati, 39°31'40"N, 34°43'04"E, 902 m, 13.VII.2006, 3 specimens; Central County, 39°32'53"N, 34°57'48"E, 953 m, 13.VII.2006, 12 specimens; Çekerek, 40°05'41"N, 35°28'30"E, 1013 m, 14.VII.2006, 4 specimens; Central County, 39°41'25"N, 34°38'10"E, 962 m, 10.VI.2007, 33 specimens; Central County, 39°38'07"N, 34°55'22"E, 1043 m, 11.VI.2007, 8 specimens; Central County, 39°36'29"N, 34°58'06"E, 982 m, 11.VI.2007, 3 specimens; Central County, 39°34'09"N, 34°59'41"E, 952 m, 11.VI.2007, 28 specimens; Akdağmadeni, 39°43'28"N, 35°54'37"E, 1195 m, 12.VI.2007, 3 specimens; Central County, 39°56'14"N, 34°42'33"E, 1206 m, 13.VI.2007, 1 specimen;

col. M. Kabalak. **Ankara:** Şereflikoçhisar, 39°05'19"N, 33°32'06"E, 947 m, 25.V.2008, 4 specimens; Ayaş, 40°00'12"N, 32°20'37"E, 960 m, 14.VI.2008, 1 specimen; **Eskişehir:** Sarıcakaya, 40°05'22"N, 30°50'38"E, 250 m, 01.VII.2009, 1 specimen; Central County, 39°34'50"N, 30°16'40"E, 911 m, 02.VII.2009, 1 specimen; **Karaman:** Central County, 37°09'11"N, 33°26'09"E, 1112 m, 12.VI.2009, 2 specimens; **Kırşehir:** Akpınar, 39°31'12"N, 33°59'53"E, 941 m, 28.VI.2009, 2 specimens; **Konya:** Ilgın, 38°03'37"N, 31°50'03"E, 1225 m, 05.VI.2009, 16 specimens; **Nevşehir:** Ürgüp, 38°32'53"N, 34°55'17"E, 1223 m, 24.VI.2009, 3 specimens; col. Y. Turan.

36. *Agriotes propleuralis* Platia and Gudenzi, 1998

Material Examined: **Kayseri:** Pınarbaşı, 38°42'28"N, 36°26'07"E, 1547 m, 20.VII.2003, 1 specimen; col. N. Kocatepe.

37. *Agriotes proximus* Schwarz, 1891

Material Examined: **Aksaray:** Ortaköy, 38°42'56"N, 34°06'14"E, 1143 m, 11.V.2007, 1 specimen; **Ankara:** Ayaş, 40°11'59"N, 32°27'51"E, 1036 m, 30.V.2004, 1 specimen; Çankaya, 39°51'57"N, 32°44'25"E, 1050 m, 22.IV.2008, 4 specimens; **Çankırı:** Korgun, 40°49'01"N, 33°33'28"E, 1229 m, 28.VII.2005, 1 specimen; **Eskişehir:** Seyitgazi, 39°28'50"N, 30°39'42"E, 1000 m, 05.VI.2006, 1 specimen; Seyitgazi, 39°21'26"N, 30°47'04"E, 996 m, 29.VII.2006, 1 specimen; Mahmudiye, 39°33'26"N, 30°50'37"E, 917 m, 16.V.2007, 1 specimen; **Kayseri:** Tomarza, 38°25'25"N, 35°51'38"E, 1364 m, 02.V.2006, 1 specimen; Bünyan, 38°51'24"N, 35°47'11"E, 1233 m, 10.VII.2006, 1 specimen; Sarız, 38°21'55"N, 36°26'35"E, 1500 m, 09.VII.2006, 1

specimen; Sarız, 38°27'00"N, 36°28'42"E, 1559 m, 29.V.2007, 8 specimens; Develi, 38°11'51"N, 35°53'45"E, 1481 m, 29.V.2007, 1 specimen; Özvatan, 39°08'03"N, 35°38'57"E, 1414 m, 30.V.2007, 3 specimens; Pınarbaşı, 38°54'17"N, 36°26'47"E, 1566 m, 31.V.2007, 1 specimen; Pınarbaşı, 38°50'57"N, 36°19'40"E, 1682 m, 31.V.2007, 7 specimens; Pınarbaşı, 38°49'11"N, 36°11'12"E, 1552 m, 31.V.2007, 1 specimen; **Kırşehir:** Akpınar, 39°21'47"N, 34°00'37"E, 1147 m, 04.VII.2006, 1 specimen; Akpınar, 39°26'43"N, 34°05'50"E, 1309 m, 05.VII.2006, 1 specimen; Kaman, 39°21'55"N, 33°47'14"E, 1049 m, 09.VI.2007, 1 specimen; Central County, 39°18'15"N, 34°06'07"E, 1083 m, 09.VI.2007, 2 specimens; Akçakent, 39°37'02"N, 34°11'55"E, 1387 m, 09.VI.2007, 1 specimen; **Konya:** Beyşehir, 39°35'55"N, 31°26'49"E, 1124 m, 14.V.2005, 1 specimen; Çumra, 37°32'33"N, 32°40'32"E, 1025 m, 27.V.2005, 1 specimen; Selçuklu, 37°55'20"N, 32°16'12"E, 1269 m, 13.VI.2006, 1 specimen; Seydişehir, 37°27'25"N, 31°42'39"E, 1727 m, 05.V.2007, 3 specimens; **Niğde:** Ulukışla, 37°24'51"N, 34°33'55"E, 2341 m, 22.V.2008, 3 specimens; **Sivas:** Yıldızeli, 39°49'44"N, 36°42'16"E, 1339 m, 22.VII.2005, 3 specimens; Divriği, 39°30'27"N, 38°07'32"E, 1405 m, 22.V.2006, 1 specimen; Central County, 39°38'28"N, 37°00'29"E, 1338 m, 22.V.2006, 1 specimen; Yıldızeli, 39°49'51"N, 36°42'10"E, 1338 m, 24.V.2006, 2 specimens; Yıldızeli, 39°49'44"N, 36°42'15"E, 1341 m, 15.VII.2006, 6 specimens; İmranlı, 39°53'07"N, 38°1'52"E, 1568 m, 17.VII.2006, 1 specimen; Zara, 40°00'01"N, 37°43'49"E, 1559 m, 01.VI.2007, 1 specimen; Zara, 40°04'04"N, 37°43'39"E, 1692 m, 01.VI.2007, 1 specimen; Zara, 40°04'55"N, 37°43'41"E, 1571 m, 01.VI.2007, 1 specimen; Şarkışla, 39°34'27"N, 36°14'36"E, 1351 m,

03.VI.2007, 1 specimen; Şarkışla, 39°33'38"N, 36°17'36"E, 1299 m, 03.VI.2007, 1 specimen; Gemerek, 39°28'40"N, 35°57'59"E, 1809 m, 03.VI.2007, 1 specimen; **Yozgat:** Sarıkaya, 39°26'34"N, 35°21'38"E, 1185 m, 04.V.2006, 2 specimens; Central County, 39°37'44"N, 34°52'07"E, 1149 m, 05.V.2006, 1 specimen; Çekerek, 40°05'41"N, 35°28'30"E, 1013 m, 14.VII.2006, 2 specimens; Çandır, 39°15'13"N, 35°34'03"E, 1264 m, 11.VI.2007, 2 specimens; Akdağmadeni, 39°32'56"N, 35°41'33"E, 1348 m, 13.VI.2007, 1 specimen; col. M. Kabalak. **Kayseri:** Develi, 38°25'28"N, 35°17'42"E, 1086 m, 02.VII.2003, col. N. Yanbuloglu, 1 specimen. **Ankara:** Ayaş, 40°01'43"N, 32°22'39"E, 1087 m, 29.V.2008, 1 specimen; **Sivas:** Hafik, 39°55'12"N, 37°23'44"E, 1322 m, 18.VII.2009, 1 specimen; col. Y. Turan.

38. *Agriotes sputator* (Linnaeus, 1758)

Material Examined: **Ankara:** Kızılcahamam, 40°27'05"N, 32°37'17"E, 1216 m, 14.V.1995, 1 specimen; Çankaya, 39°52'17"N, 32°44'08"E, 1042 m, 18.V.1995, 1 specimen; Çankaya, 39°52'17"N, 32°44'08"E, 1042 m, 24.IV.2002, 4 specimens; Çankaya, 39°52'17"N, 32°44'08"E, 1042 m, 11.VII.2002, 1 specimen; Haymana, 39°32'39"N, 32°38'55"E, 1150 m, 10.V.2003, 23 specimens; Bala, 39°38'31"N, 33°03'31"E, 969 m, 15.V.2003, 1 specimen; Bala, 39°38'32"N, 33°03'33"E, 970 m, 15.V.2003, 2 specimens; Çubuk, 40°17'02"N, 33°02'50"E, 1193 m, 16.V.2003, 28 specimens; Kızılcahamam, 40°37'53"N, 32°29'28"E, 1379 m, 21.V.2003, 1 specimen; Kızılcahamam, 40°38'22"N, 32°30'24"E, 1364 m, 21.V.2003, 1 specimen; Kızılcahamam, 40°39'09"N, 32°36'38"E, 1590 m, 21.V.2003, 2 specimens; Haymana, 39°27'31"N, 32°25'42"E, 1124 m, 25.V.2003,

3 specimens; Evren, 38°59'39"N, 33°43'44"E, 1150 m, 28.V.2003, 4 specimens; Çubuk, 40°16'50"N, 33°00'27"E, 1156 m, 29.V.2003, 6 specimens; Elmadag, 39°48'48"N, 33°07'58"E, 1191 m, 08.VI.2003, 1 specimen; Gölbaşı, 39°35'56"N, 32°50'45"E, 1096 m, 24.VI.2003, 1 specimen; Çamlıdere, 40°30'14"N, 32°25'40"E, 1183 m, 29.VI.2003, 1 specimen; Gündül, 40°10'55"N, 32°20'19"E, 1007 m, 30.V.2004, 3 specimens; Ayaş, 40°06'03"N, 32°24'22"E, 1039 m, 30.V.2004, 1 specimen; Kalecik, 40°14'24"N, 33°27'28"E, 842 m, 09.V.2006, 7 specimens; Çankaya, 39°51'57"N, 32°44'25"E, 1050 m, 22.IV.2008, 10 specimens; **Karaman:** Central County, 1410 m, 28.V.2005, 3 specimens; Ermenek, 36°42'18"N, 32°57'18"E, 1483 m, 11.VI.2006, 3 specimens; **Kayseri:** Tomarza, 38°24'27"N, 35°57'05"E, 1370 m, 02.V.2006, 1 specimen; Pınarbaşı, 38°54'11"N, 36°26'49"E, 1579 m, 03.V.2006, 1 specimen; Akkışla, 39°00'59"N, 36°04'16"E, 1235 m, 03.V.2006, 4 specimens; Bünyan, 38°51'24"N, 35°47'11"E, 1233 m, 10.VII.2006, 1 specimen; Sarioğlan, 39°01'35"N, 36°03'27"E, 1229 m, 10.VII.2006, 1 specimen; **Kırıkkale:** Keskin, 39°38'23"N, 33°38'07"E, 1060 m, 25.VI.2004, 1 specimen; **Kırşehir:** Boztepe, 39°24'20"N, 34°15'45"E, 1163 m, 25.VI.2004, 1 specimen; Kaman, 25.VI.2004, 1 specimen; Aktepe Akpınar-Akçakent yolu, 39°31'12"N, 34°03'27"E, 990 m, 28.IV.2006, 1 specimen; Akpınar, 39°26'54"N, 33°58'58"E, 1157 m, 05.VII.2006, 1 specimen; Akpınar, 39°26'43"N, 34°05'50"E, 1309 m, 05.VII.2006, 1 specimen; **Nevşehir:** HacıBektaş, 38°54'19"N, 34°38'09"E, 1109 m, 23.VI.2007, 3 specimens; **Niğde:** Central County, 38°00'38"N, 34°50'33"E, 1545 m, 23.IV.2006, 1 specimen; **Sivas:** Yıldızeli, 39°49'44"N, 36°42'16"E, 1339 m, 22.VII.2005, 1 specimen; Divriği, 39°30'27"N, 38°07'32"E, 1405 m, 22.V.2006,

5 specimens; Central County, 39°38'28"N, 37°00'29"E, 1338 m, 22.V.2006, 1 specimen; Ulaş, 39°34'14"N, 36°58'03"E, 1389 m, 23.V.2006, 1 specimen; Gemerek, 39°17'12"N, 36°00'25"E, 1187 m, 23.V.2006, 1 specimen; Gemerek, 39°18'18"N, 35°56'48"E, 1345 m, 23.V.2006, 1 specimen; Central County, 39°24'17"N, 36°41'25"E, 1366 m, 23.V.2006, 2 specimens; Yıldızeli, 39°59'49"N, 36°40'17"E, 1450 m, 24.V.2006, 1 specimen; Yıldızeli, 39°49'51"N, 36°42'10"E, 1338 m, 15.VII.2006, 3 specimens; Zara, 39°39'35"N, 37°45'49"E, 1494 m, 01.VI.2007, 4 specimens; **Yozgat:** Sarıkaya, 39°33'31"N, 35°34'00"E, 1145 m, 14.VII.2006, 1 specimen; Central County, 39°38'07"N, 37°55'21"E, 1040 m, 04.V.2007, 1 specimen; Sorgun, 40°04'07"N, 35°15'23"E, 1545 m, 19.V.2008, 1 specimen; col. M. Kabalak. **Ankara:** Haymana, 39°33'41"N, 32°42'55"E, 1037 m, 28.V.2008, 1 specimen; Ayaş, 40°01'43"N, 32°22'39"E, 1087 m, 29.V.2008, 2 specimens; **Karaman:** Başyayla, 36°45'15"N, 32°40'32"E, 1301 m, 13.VI.2009, 1 specimen; **Kayseri:** Felahiye, 39°07'36"N, 35°38'08"E, 1397 m, 21.VII.2009, 1 specimen; **Sivas:** Hafik, 39°49'34"N, 37°16'27"E, 1294 m, 18.VII.2009, 1 specimen; Hafik, 39°55'12"N, 37°23'44"E, 1322 m, 18.VII.2009, 1 specimen; col. Y. Turan.

Subfamily: MELANOTINAE Candèze, 1859

Genus: *Melanotus* Eschscholtz, 1829

Subgenus: *Melanotus* Eschscholtz, 1829

39. *Melanotus* (s. str.) *bajulus* (Erichson, 1841)

Material Examined: **Yozgat:** Sorgun, 40°04'08"N, 35°15'21"E, 1536 m, 22.VII.2005, 1 specimen; col. M. Kabalak.

40. *Melanotus* (s. str.) *fraseri* Platia and Schimmel, 1993

Material Examined: **Ankara:** Çankaya, 39°54'38"N, 32°49'04"E, 909 m, 31.VII.2002, col. A. Gültekin, 1 specimen. **Ankara:** Çubuk, 40°17'15"N, 33°00'53"E, 1139 m, 17.VII.2005, 1 specimen; Çankaya, 39°52'17"N, 32°44'08"E, 1042 m, 02.VIII.2005, 2 specimens; Çankaya, 39°52'17"N, 32°44'08"E, 1042 m, 29.VII.2008, 2 specimens; col. M. Kabalak.

41. *Melanotus* (s. str.) *fusciceps* Gyllenhal, 1817

Material Examined: **Ankara:** Yenimahalle, 39°57'58"N, 32°48'21"E, 885 m, 18.VII.2002, 1 specimen; Ayaş, 40°02'38"N, 32°15'24"E, 728 m, 25.VII.2002, 5 specimens; Bala, 39°39'31"N, 33°04'22"E, 970 m, 26.VII.2002, 1 specimen; Gölbaşı, 39°44'11"N, 32°50'02"E, 1084 m, 01.VIII.2002, 4 specimens; Yenimahalle, 39°57'58"N, 32°48'21"E, 885 m, 16.VIII.2002, 1 specimen; Çankaya, 39°52'17"N, 32°44'08"E, 1042 m, 02.VIII.2005, 1 specimen; Yenimahalle, 39°57'58"N, 32°48'21"E, 885 m, 08.VIII.2002, 1 specimen; Elmadağ, 39°58'23"N, 33°07'06"E, 1110 m, 10.VIII.2006, 1 specimen; Sincan, 39°59'36"N, 32°35'28"E, 835 m, 10.VII.2007, 1 specimen; Bahçelievler, 39°55'16"N, 32°49'35"E, 902 m, 29.VII.2008, 1 specimen; Çankaya, 39°52'17"N, 32°44'08"E, 1042 m, 29.VII.2008, 1 specimen; Elmadağ, 39°58'23"N, 33°07'06"E, 1110 m, 29.VII.2009, 1 specimen; Bahçelievler, 39°55'16"N, 32°49'35"E, 902 m, 06.VIII.2009, 1 specimen; **Eskişehir:** Mihalıççık, 39°58'28"N, 31°22'38"E, 933 m, 24.VII.2002, 1 specimen; **Kayseri:** Central County, 38°53'31"N, 35°44'05"E, 1216 m, 10.VII.2006, 1 specimen; **Nevşehir:** Avanos,

38°58'37"N, 34°57'57"E, 1210 m, 06.VII.2006, 1 specimen; **Sivas:** Central County, 39°41'57"N, 37°0'33"E, 1255 m, 20.VII.2005, 1 specimen; **Yozgat:** Central County, 39°38'07"N, 34°55'25"E, 1027 m, 12.VII.2006, 5 specimens; col. M. Kabalak.

Subfamily: NEGASTRIINAE

Genus: *Quasimus* Des Gozis, 1886

42. *Quasimus minutissimus* (Germar, 1817)

Material Examined: **Çankırı:** Ilgaz, 41°4'22"N, 33°43'47"E, 1851 m, 22.VII.2006, 7 specimens; **Sivas:** Koyulhisar, 40°21'21"N, 37°51'17"E, 1644 m, 02.VI.2007, 1 specimen; **Yozgat:** Sorgun, 40°04'08"N, 35°15'21"E, 1536 m, 22.VII.2005, 1 specimen; Sorgun, 39°54'47"N, 35°18'04"E, 1224 m, 05.V.2006, 60 specimens; col. M. Kabalak.

Genus: *Zorochros* C. G. Thomson, 1859

43. *Zorochros dermestoides* (Herbst, 1806)

Material Examined: **Ankara:** Çubuk, 40°26'48"N, 32°52'38.11"E, 1418 m, 29.V.2003, col. M. Kabalak, 2 specimens; **Eskişehir:** Mihalıççık, 39°59'13"N, 31°20'32"E, 643 m, 30.VI.2009, 1 specimen; col. Y. Turan.

44. *Zorochros georgicus* Dolin and Tschatlandze, 1980

Material Examined: **Karaman:** Ermenek, 36°42'18"N, 32°57'18"E, 1483 m, 11.VI.2006, 1 specimen; col. M. Kabalak.

45. *Zorochros heyrovskyi* Roubal, 1940

Material Examined: **Konya:** Kadınhanı, 38°08'42"N, 32°07'33"E, 1319 m,

17.IV.2006, 15 specimens; Taşkent, 36°50'26"N, 32°29'36"E, 1820 m, 10.VI.2006, 5 specimens; **Yozgat:** Sorgun, 39°54'47"N, 35°18'04"E, 1224 m, 05.V.2006, 6 specimens; col. M. Kabalak.

46. *Zorochros pilosellus* (Reitter, 1895)

Material Examined: **Karaman:** Central County, 36°56'49"N, 33°02'20"E, 408 m, 28.V.2005, 4 specimens; col. M. Kabalak.

47. *Zorochros stibicki* (Leseigneur 1970)

Material Examined: **Ankara:** Kızılcahamam, 40°38'23"N, 32°30'22"E, 1369 m, 21.V.2003, 1 specimen; col. M. Kabalak.

Subfamily: Agrypninae Candèze, 1857

Tribe: Agrypnini Candèze, 1857

Genus: *Agrypnus* Eschscholtz, 1829

48. *Agrypnus crenicollis* (Ménétriés, 1832)

Material Examined: **Sivas:** Suşehri, 40°01'12"N, 38°00'28"E, 1614 m, 14.V.2006, 3 specimens; Suşehri, 40°01'11"N, 38°00'25"E, 1620 m, 02.VI.2007, 4 specimens; col. M. Kabalak.

Tribe: Oophorini Gistel, 1856

Genus: *Drasterius* Eschscholtz, 1829

49. *Drasterius bimaculatus* Rossi, 1790

Material Examined: **Ankara:** Etimesgut, 39°59'03"N, 32°37'30"E, 845 m, 10.XI.2001, 3 specimens; col. Y. Güler. **Ankara:** Kızılcahamam, 40°34'51"N, 32°37'21"E, 1163 m, 31.VII.2002, 2 specimens; Ayaş, 39°59'47"N, 32°16'23"E, 747 m, 11.V.2003, 1 specimen; Beypazarı, 40°06'14"N,

32°01'38"E, 522 m, 14.V.2003, 40 specimens; Nallıhan, 40°06'29"N, 31°36'02"E, 467 m, 14.V.2003, 2 specimens; Elmadağ, 39°47'37"N 33°15'25"E 842m 15.V.2003, 20 specimens; Elmadağ 39°53'16"N 33°15'48"E 1038 m, 15.V.2003, 1 specimen; Elmadağ, 39°44'20"N, 33°11'14"E, 898 m, 15.V.2003, 1 specimen; Çubuk, 40°22'55"N, 33°03'50"E, 1277 m, 16.V.2003, 1 specimen; Çubuk, 40°25'47"N, 33°06'44"E, 1545 m, 16.V.2003, 1 specimen; Çubuk, 40°23'47"N, 33°03'50"E, 1261 m, 16.V.2003, 3 specimens; Polatlı, 39°30'12"N, 32°12'57"E, 849 m, 18.V.2003, 6 specimens; Ayaş, 40°05'51"N, 32°15'04"E, 673 m, 24.V.2003, 4 specimens; Gündül, 40°17'20"N, 31°57'24"E, 1398 m, 24.V.2003, 5 specimens; Akyurt, 40°08'40"N, 33°14'59"E, 1171 m, 30.V.2003, 1 specimen; Beypazarı 1.5 km, 40°11'04"N, 31°54'53"E, 716 m, 07.VI.2003, 1 specimen; Beypazarı, 40°19'34"N, 32°03'12"E, 1016 m, 07.VI.2003, 1 specimen; Kızılcahamam, 40°20'00"N, 32°42'03"E, 971 m, 17.VI.2003, 2 specimens; Polatlı, 39°22'29"N, 32°15'57"E, 839 m, 18.VI.2003, 1 specimen; Nallıhan, 40°07'45"N, 31°33'30"E, 620 m, 23.VI.2003, 3 specimens; Nallıhan, 40°13'53"N, 31°20'27"E, 658 m, 23.VI.2003, 15 specimens; Çubuk, 40°18'54"N, 32°55'46"E, 1072 m, 25.VI.2003, 1 specimen; Gölbaşı, 39°29'05"N, 32°49'31"E, 1286 m, 24.VII.2003, 1 specimen; Ayaş, 40°06'09"N, 32°14'58"E, 687 m, 09.VII.2003, 1 specimen; Çubuk, 40°14'19"N, 33°11'05"E, 1132 m, 04.IX.2003, 1 specimen; **Çankırı:** Bayramören, 40°57'01"N, 33°11'57"E, 765 m, 04.VI.2008, 1 specimen; **Karaman:** Central County, 36°56'49"N, 33°02'20"E, 416 m, 28.V.2005, 4 specimens; **Kayseri:** Develi, 38°23'21"N, 35°21'52"E, 1075 m, 12.IV.2003, 9 specimens; Develi, 38°23'21"N, 35°21'52"E, 1075 m, 28.VII.2003, 1 specimen; Develi, 38°23'21"N, 35°21'52"E, 1072 m, 01.V.2006, 8 specimens; **Kırıkkale:**

Çelebi, 39°30'36"N, 33°31'06"E, 993 m, 25.VII.2003, 1 specimen; **Konya:** Doğanhisar, 38°09'26"N, 31°39'41"E, 1196 m, 14.V.2005, 8 specimens; Tuzlukçu, 38°26'31"N, 31°39'53"E, 1002 m, 16.IV.2006, 1 specimen; Tuzlukçu, 38°30'13"N, 31°35'44"E, 953 m, 16.IV.2006, 1 specimen; Akşehir, 38°26'31"N, 31°39'53"E, 1002 m, 16.IV.2006, 3 specimens; Kadınhanı, 38°08'42"N, 32°07'33"E, 1319 m, 17.IV.2006, 1 specimen; Ilgın, 38°16'23"N, 31°42'25"E, 1101 m, 17.IV.2006, 1 specimen; Beyşehir, 37°38'27"N, 31°37'44"E, 1128 m, 18.IV.2006, 1 specimen; Akşehir, 38°26'57"N, 31°31'02"E 967 m, 03.V.2007, 2 specimens; Beyşehir, 37°37'22"N, 31°27'09"E, 1126 m, 04.V.2007, 9 specimens; Bozkır, 37°06'50"N, 32°18'17"E, 1277 m, 05.V.2007, 2 specimens; **Niğde:** Çamardı, 37°52'43"N, 35°06'25"E, 1565 m, 21.VI.2006, 1 specimen; Sivas, 40°14'40"N, 38°05'09"E, 752 m, 02.VI.2007, 1 specimen; **Yozgat:** Çekerek, 40°04'11"N, 35°33'46"E, 788 m, 12.VI.2007, 1 specimen; col. M. Kabalak. **Aksaray:** Central County, 38°16'42"N, 33°42'20"E, 926 m, 29.V.2004, 1 specimen; Şereflikoçhisar, 38°56'20"N, 33°32'18"E, 948 m, 29.V.2004, 2 specimens; **Kırşehir:** Boztepe, 39°24'20"N, 34°15'45"E, 1163 m, 25.VI.2004, 2 specimens; col. N. Kocatepe. **Ankara:** Çankaya, 39°52'00"N, 32°44'27"E, 1046 m, 22.V.2007, 1 specimen; Çankaya, 39°53'00"N, 32°45'21"E, 936 m, 12.IV.2008, 1 specimen; col. K. Koyuncu. **Ankara:** Yenimahalle, 39°53'22"N, 32°42'02"E, 932 m, 07.IX.2008, col. O. Sert, 1 specimen. **Aksaray:** Güzelyurt, 38°15'15"N, 34°18'10"E, 1227 m, 15.VI.2009, 2 specimens; Güzelyurt, 38°16'03"N, 34°17'16"E, 1196 m, 22.VI.2009, 6 specimens; Gülağaç, 38°21'19"N, 34°13'45"E, 1107 m, 23.VI.2009, 3 specimens; **Ankara:**

Şereflikoçhisar, 38°45'48"N, 33°41'54"E, 1094 m, 27.V.2008, 1 specimen; Şereflikoçhisar, 38°51'59"N, 33°42'21"E, 1064 m, 27.V.2008, 1 specimen; Şereflikoçhisar, 38°55'04"N, 33°39'21"E, 1034 m, 27.V.2008, 1 specimen; Çubuk, 40°23'19"N, 32°56'45"E, 1183 m, 13.VI.2008, 1 specimen; Ayaş, 39°59'45"N, 32°16'26"E, 804 m, 14.VI.2008, 1 specimen; Nallıhan, 40°04'17"N, 31°23'44"E, 412 m, 14.VI.2008, 2 specimens; Beypazarı, 40°20'20"N, 31°55'50"E, 1632 m, 15.VI.2008, 1 specimen; **Eskişehir:** Sivrihisar, 39°40'43"N, 31°46'18"E, 960 m, 30.VI.2009, 1 specimen; Mihaliççık, 39°59'13"N, 31°20'32"E 643 m, 30.VI.2009, 1 specimen; Central County, 39°57'16"N, 30°30'10"E, 1026 m, 01.VII.2009, 1 specimen; Sivrihisar, 39°11'25"N, 31°37'39"E, 838 m, 01.VII.2009, 1 specimen; **Kayseri:** Yahyalı, 37°53'49"N, 35°30'49"E, 800 m, 22.VII.2009, 1 specimen; **Karaman:** Ayrancı, 37°10'47"N, 33°47'22"E, 1444 m, 14.VI.2009, 2 specimens; **Kırşehir:** Akpınar, 39°31'05"N, 33°51'43"E, 938 m, 28.VI.2009, 1 specimen; **Konya:** Central County, 37°53'19"N 32°18'35"E 1257m 1 specimen 02.VI.2009, Central County 37°47'53"N 32°10'39"E, 1405 m, 02.VI.2009, 1 specimen; Seydişehir, 37°32'50"N, 32°09'15"E, 1610 m, 02.VI.2009, 1 specimen; Hadim, 37°03'01"N, 32°03'33"E, 1283 m, 04.VI.2009, 2 specimens; Ereğli, 37°25'45"N, 34°11'36"E, 1160 m, 14.VI.2009, 5 specimens; **Nevşehir:** Avanos, 38°44'56"N, 34°54'06"E, 1026 m, 24.VI.2009, 1 specimen; Avanos, 38°43'59"N, 34°55'50"E, 938 m, 24.VI.2009, 1 specimen; Ürgüp, 38°38'59"N, 35°00'36"E, 1332 m, 24.VI.2009, 1 specimen; Gülşehir, 38°42'48"N, 34°29'04"E, 972 m, 25.VI.2009, 3 specimens; Avanos, 39°13'17"N, 34°51'09"E, 1045 m, 26.VI.2009, 1 specimen; **Sivas:** Doğanşar, 40°15'19"N, 37°32'45"E, 1069 m, 18.VII.2009, 3 specimens; Suşehri,

40°01'21"N, 38°10'51"E, 1155 m, 19.VII.2009, 1 specimen; Ulaş, 39°25'21"N, 36°52'26"E, 1458 m, 20.VII.2009, 1 specimen; col. Y Turan.

Genus: *Aeoloderma* Fleutiaux, 1928

50. *Aeoloderma crucifer* (Rossi, 1790)

Material Examined: **Ankara:** Polatlı, 39°30'12"N, 32°12'56"E, 848 m, 18.VI.2003, 3 specimens; **Konya:** Akşehir, 38°26'57"N, 31°31'02"E, 967 m, 03.V.2007, 1 specimen; **Nevşehir:** Hacıbektaş, 38°45'49"N, 34°35'43"E, 949m, 29.IV.2006, 1 specimen; col. M. Kabalak

Genus: *Aeolosomus* Dolin, 1982

51. *Aeolosomus rossi* (Germar, 1844)

Material Examined: **Konya:** Akşehir, 38°26'50"N, 31°30'58"E, 966 m, 13.V.2005, 6 specimens; col. M. Kabalak.

Subfamily: *Cardiophorinae* Candèze, 1860

Tribe: *Cardiophorini* Candèze, 1859

Genus: *Cardiophorus* Eschscholtz, 1829

Subgenus: *Cardiophorus* Eschscholtz, 1829

52. *Cardiophorus (Cardiophorus) analis* Schwarz, 1892

Material Examined: **Konya:** Beyşehir, 37°43'59"N, 31°41'18"E, 1127 m, 28.V.1999, 4 specimens; col. O. Sert.

53. *Cardiophorus (s. str.) anticus* Erichson, 1840

Material Examined: **Ankara:** Kızılcahamam, 40°20'00"N, 32°42'02"E, 971 m, 17.VI.2003, 1 specimen; Çankaya, 39°51'57"N, 32°44'25"E, 1049 m, 05.V.2005, 1 specimen; Çankaya, 39°51'57"N, 32°44'25"E, 1049 m, 02.V.2008, 2 specimens; col. M. Kabalak.

54. *Cardiophorus* (s. str.) *discicollis*
(Herbst, 1806)

Material Examined: **Eskişehir:** Sivrihisar, 39°32'35"N, 31°42'39"E, 815 m, 06.VI.2006, 1 specimen; **Karaman:** Central County, 37°08'27"N, 33°34'09"E, 1260 m, 07.V.2007, 3 specimens; col. M. Kabalak. **Aksaray:** Güzelyurt, 38°15'13"N, 34°18'07"E, 1266 m, 15.V.2009, 1 specimen; **Karaman:** Ayrancı, 37°21'33"N, 33°38'52"E, 1112 m, 14.VI.2009, 1 specimen; col. Y. Turan.

55. *Cardiophorus* (s. str.) *dolini*
Mardjanian, 1985

Material Examined: **Ankara:** Gölbaşı, 39°45'44"N, 32°45'29"E, 987 m, 20.V.2003, 5 specimens; Gündül, 40°12'35"N, 32°14'15"E, 703 m, 24.V.2003, 3 specimens; Haymana, 39°26'03"N, 32°27'10"E, 1198 m, 25.V.2003, 3 specimens; Kazan, 40°07'37"N, 32°35'36"E, 856 m, 16.VI.2003, 1 specimen; Bala, 39°37'54"N, 32°55'08"E, 1174 m, 21.VI.2003, 1 specimen; Bala, 39°30'55"N, 32°57'32"E, 1044 m, 21.VI.2003, 2 specimens; Gölbaşı, 39°29'05"N, 32°49'31"E, 1287 m, 24.VI.2003, 13 specimens; Gölbaşı, 39°35'56"N, 32°50'45"E, 1096 m, 24.VI.2003, 2 specimens; Gölbaşı, 24.VI.2003; **Eskişehir:** Seyitgazi, 39°28'50"N, 30°39'42"E, 1000 m, 05.VI.2006, 2 specimens; **Karaman:** Merkez, 37°26'18"N, 33°10'00"E, 1210 m, 21.IV.2006, 1 specimen; **Kayseri:** Tomarza, 38°30'13"N, 35°48'02"E, 1442 m, 29.V.2007, 3 specimens; Sarioğlu, 39°04'13"N, 35°50'37"E, 1177 m, 30.V.2007, 1 specimen; **Kırşehir:** Kaman, 39°22'13"N, 33°50'20"E, 1118 m, 25.VI.2004, 1 specimen; Central County, 39°21'49"N, 34°10'55"E, 1208 m, 09.VI.2007, 2 specimens; Çiçekdağı, 39°34'16"N, 34°27'13"E, 904 m, 10.VI.2007,

1 specimen; Mucur, 39°07'14"N, 34°25'06"E, 1189 m, 10.VI.2007, 8 specimens; Mucur, 39°01'21"N, 34°16'45"E, 975 m, 10.VI.2007, 12 specimens; **Konya:** Kulu, 39°03'47"N, 32°53'52"E, 1070 m, 13.V.2005, 25 specimens; Central County, 37°40'59"N, 32°35'11"E, 1015 m, 27.V.2005, 1 specimen; Kulu, 39°03'46"N, 32°53'46"E, 1068 m, 09.VI.2006, 4 specimens; **Nevşehir:** Kozaklı, 39°19'03"N, 34°44'49"E, 1008 m, 10.VII.2007, 18 specimens; **Yozgat:** Boğazlıyan, 39°22'53"N, 35°08'08"E, 1177 m, 11.VI.2007, 7 specimens; Boğazlıyan, 39°15'30"N, 35°12'35"E, 1148 m, 11.VI.2007, 11 specimens; col. M. Kabalak. **Ankara:** Şereflikoçhisar, 39°05'19"N, 33°32'06"E, 947 m, 25.V.2008, 14 specimens; Beypazarı, 40°16'49"N, 31°55'31"E, 1136 m, 17.VI.2008, 1 specimen; **Nevşehir:** Gülşehir, 38°45'56"N, 34°35'59"E, 909 m, 26.VI.2009, 8 specimens; col. Y. Turan.

56. *Cardiophorus* (s. str.) *frequens*
Platia and Gudenzi, 2002

Material Examined: **Konya:** Karapınar, 37°42'49"N, 33°31'34"E, 1001 m, 20.IV.2006, 3 specimens; Bozkır, 37°06'50"N, 32°18'17"E, 1277 m, 05.V.2007, 1 specimen; col. M. Kabalak.

57. *Cardiophorus* (s. str.) *impressiventris* Schwarz, 1900

Material Examined: **Karaman:** Central County, 37°26'18"N, 33°10'00"E, 1210 m, 21.IV.2006, 8 specimens; col. M. Kabalak.

58. *Cardiophorus* (s. str.) *kindermanni* Candèze, 1860

Material Examined: **Karaman:** Central County, 36°56'49"N, 33°02'20"E, 416 m, 11.VI.2006, 3 specimens; Ermenek,

36°42'18"N, 32°57'18"E, 1483 m, 11.VI.2006, 1 specimen; Central County, 37°07'13"N, 33°04'21"E, 1156 m, 06.V.2007, 1 specimen; col. M. Kabalak.

59. *Cardiophorus* (s. str.) *levis* Platia and Gudenzi, 2002

Material Examined: **Yozgat:** Sorgun, 40°04'27"N, 35°14'41"E, 1442 m, 19.V.2008, 1 specimen; col. M. Kabalak.

60. *Cardiophorus* (s. str.) *megathorax* Faldermann, 1835

Material Examined: **Ankara:** Polatlı, 39°25'15"N, 32°15'01"E, 916 m, 18.VI.2003, 8 specimens; Bala, 39°30'02"N, 33°16'56"E, 951 m, 21.VI.2003, 1 specimen; Şereflikoçhisar, 39°10'08"N, 33°22'38"E, 1029 m, 21.VI.2003, 4 specimens; Çubuk, 40°12'35"N, 32°53'26"E, 1317 m, 25.VI.2003, 2 specimens; **Kayseri:** İncesu, 38°40'33"N, 35°13'48"E, 1056 m, 27.V.2007, 3 specimens; Sarioğlan, 39°04'13"N, 35°50'37"E, 1177 m, 30.V.2007, 1 specimen; İncesu, 38°41'33"N, 35°07'41"E, 1222 m, 24.VI.2007, 16 specimens; **Konya:** Kulu, 39°08'39"N, 33°06'29"E, 1005 m, 09.VI.2006, 1 specimen; Kulu, 39°03'46"N, 32°53'46"E, 1068 m, 09.VI.2006, 20 specimens; **Nevşehir:** Central County, 38°36'28"N, 34°48'35"E, 1487 m, 25.VI.2007, 6 specimens; Acıgöl, 38°30'05"N, 34°29'52"E, 1311 m, 25.VI.2007, 1 specimen; **Yozgat:** Çekerek, 40°04'11"N, 35°33'46"E, 788 m, 12.VI.2007, 1 specimen; col. M. Kabalak. **Aksaray:** Central County, 38°11'37"N, 34°07'15"E, 1287 m, 15.VI.2009, 4 specimens; **Ankara:** Şereflikoçhisar, 39°00'00"N, 33°30'31"E, 1002 m, 25.V.2008, 1 specimen; **Eskişehir:** Mihaliççık 39°45'32"N, 31°34'28"E 764 m, 30.VI.2009, 1 specimen; **Karaman:** Central

County, 37°13'28"N, 33°02'10"E, 1040 m, 12.VI.2009, 11 specimens; Ayrancı, 37°21'33"N, 33°38'52"E, 1112 m, 14.VI.2009, 6 specimens; **Konya:** Hadim, 37°01'35"N, 32°42'08"E, 814 m, 04.VI.2009, 1 specimen; col. Y. Turan.

61. *Cardiophorus* (s. str.) *miniaticollis* Candèze, 1860

Material Examined: **Konya:** Güneysınır, 37°17'54"N, 32°43'05"E, 1130 m, 19.IV.2006, specimen; col. M. Kabalak.

62. *Cardiophorus* (s. str.) *nigratissimus* Buysson, 1891

Material Examined: **Ankara:** Polatlı, 39°25'15"N, 32°15'01"E, 916 m, 18.VI.2003, 32 specimens; Şereflikoçhisar, 39°10'08"N, 33°22'38"E, 1029 m, 21.VI.2003, 17 specimens; Nallıhan, 40°07'45"N, 31°32'38"E, 633 m, 23.VI.2003, 3 specimens; Çubuk, 40°12'35"N, 32°53'26"E, 1317 m, 25.VI.2003, 7 specimens; **Kayseri:** İncesu, 38°41'33"N, 35°07'41"E, 1222 m, 24.VI.2007, 51 specimens; İncesu, 38°40'33"N, 35°13'48"E, 1056 m, 27.V.2007, 3 specimens; **Kırşehir:** Çiçekdağı, 39°34'16"N, 34°27'13"E, 904 m, 10.VI.2007, 1 specimen; Mucur, 38°52'57"N, 34°20'20"E, 906 m, 23.VI.2007, 1 specimen; **Konya:** Kulu, 39°03'46"N, 32°53'46"E, 1068 m, 09.VI.2006, 37 specimens; **Nevşehir:** Gülşehir, 38°48'21"N, 34°30'56"E, 928 m, 26.VI.2004, 2 specimens; Hacıbektaş, 38°51'01"N, 34°33'33"E, 1255 m, 23.VI.2007, 34 specimens; Gülşehir, 38°44'29"N, 34°25'19"E, 1005 m, 23.VI.2007, 1 specimen; Derinkuyu, 38°21'10"N, 34°37'29"E, 1304 m, 25.VI.2007, 2 specimens; Acıgöl, 38°30'05"N, 34°29'52"E, 1311 m, 25.VI.2007, 2 specimens; Kozaklı, 39°06'39"N,

34°50'16"E, 1167 m, 25.VI.2007, 42 specimens; **Sivas:** Divriği, 39°17'26"N, 38°01'43"E, 1185 m, 01.VI.2007, 29 specimens; **Yozgat:** Çekerek, 40°04'11"N, 35°33'46"E, 788 m, 12.VI.2007, 1 specimen; Aydıncık, 40°10'31"N, 35°21'33"E, 684 m, 12.VI.2007, 1 specimen; col. M. Kabalak. **Aksaray:** Eskil, 38°16'03"N, 34°17'16"E, 964 m, 22.VI.2009, 1 specimen; **Eskişehir:** Alpu, 39°40'48"N, 31°03'44"E, 811 m, 03.VII.2009, 1 specimen; **Karaman:** Central County, 37°13'28"N, 33°02'10"E, 1040 m, 12.VI.2009, 12 specimens; Ayrancı, 37°21'33"N, 33°38'52"E, 1112 m, 14.VI.2009, 4 specimens; col. Y. Turan.

63. *Cardiophorus* (s. str.) *parvulus*
Platia and Gudenzi, 2000

Material Examined: **Karaman:** Central County, 36°56'37"N, 33°16'28"E, 1465 m, 28.V.2005, 2 specimens; Central County, 36°56'49"N, 33°2'20"E, 416 m, 28.V.2005, 3 specimens; **Konya:** Hadim, 37°06'28"N, 32°27'20"E, 1229 m, 27.V.2005, 1 specimen; Cihanbeyli, 38°48'44"N, 32°54'03"E, 963 m, 03.V.2007, 1 specimen; col. M. Kabalak. **Aksaray:** Güzelyurt, 38°15'13"N, 34°18'07"E, 1266 m, 15.VI.2009, 5 specimens; col. Y. Turan.

64. *Cardiophorus* (s. str.) *ruficruris*
(Brullé, 1832)

Material Examined: **Ankara:** Ayaş, 39°52'58"N, 32°35'31"E, 682 m, 11.V.2003, 3 specimens; **Konya:** Cihanbeyli, 38°48'44"N, 32°54'03"E, 963 m, 03.V.2007, 1 specimen; col. M. Kabalak.

65. *Cardiophorus* (s. str.) *sacratulus*
Erichson, 1840

Material Examined: **Konya:** Yunak,

38°55'03"N, 32°05'25"E, 926 m, 03.V.2007, 1 specimen; Hadim, 37°00'44"N, 32°19'52"E, 1380 m, 05.V.2007, 1 specimen; **Nevşehir:** Hacıbektaş, 39°00'24"N, 34°43'44"E, 1184 m, 29.IV.2006, 1 specimen; **Sivas:** Koyulhisar, 40°16'46"N, 37°49'35"E, 671 m, 14.V.2006, 1 specimen; Gemerek, 39°18'18"E, 35°56'48"E, 1345 m, 23.V.2006, 1 specimen; **Yozgat:** Aydıncık, 40°13'12"N, 35°18'56"E, 639 m, 06.V.2006, 1 specimen; Aydıncık, 40°13'12"N, 35°18'56"E, 639 m, 22.V.2007, 1 specimen; Akdağmadeni, 39°31'30"N, 36°00'40"E, 1921 m, 10.VII.2007, 1 specimen; col. M. Kabalak.

66. *Cardiophorus* (s. str.) *vestigialis*
Erichson, 1840

Material Examined: **Eskişehir:** Sivrihisar, 39°22'55"N, 31°29'28"E, 916 m, 14.V.2007, 1 specimen; **Kayseri:** Yeşilhisar, 38°21'34"N, 34°58'53"E, 1324 m, 07.VII.2006, 1 specimen; **Konya:** Karapınar, 37°42'48"N, 33°31'23"E, 996 m, 20.IV.2006, 5 specimens; col. M. Kabalak.

Genus: *Dicronychus* Brullé, 1832

67. *Dicronychus* *adanensis* (Pic, 1908)

Material Examined: **Yozgat:** Aydıncık, 40°13'12"N, 35°18'56"E, 639 m, 06.V.2006, 8 specimens; col. M. Kabalak.

68. *Dicronychus* *cinereus* (Herbst, 1784)

Material Examined: **Çankırı:** Central County, 40°38'05"N, 33°36'28"E, 754 m, 05.VI.2008, 2 specimens; **Eskişehir:** Mihalicçık, 39°59'12"N, 31°20'33"E, 646 m, 04.VI.2006, 1 specimen; **Karaman:** Central County, 37°08'27"N, 33°34'09"E, 1260 m, 07.V.2007, 1 specimen; **Kayseri:** Yeşilhisar, 38°20'39"N, 34°58'17"E, 1315 m, 27.V.2007, 2 specimens;

Yeşilhisar, 38°21'34"N, 34°58'53"E, 1324 m, 27.V.2007, 1 specimen; **Niğde:** Çamardı, 37°51'31"N, 34°57'30"E 1580 m, 29.V.2005, 47 specimens; Çamardı, 37°48'40"N, 34°59'40"E, 1425 m, 21.VI.2006, 1 specimen; **Sivas:** Gemerek, 39°19'15"N, 35°51'44"E, 1470 m, 23.V.2006, 4 specimens; **Yozgat:** Çekerek, 40°5'13"N, 35°35'14"E, 775 m, 06.V.2006, 8 specimens; col. M. Kabalak.

69. *Dicronychus iconiensis* Pic, 1908

Material Examined: **Karaman:** Kılbasan, 37°26'18"N, 33°10'00"E, 1210 m, 21.IV.2006, 3 specimens; Kılbasan, 37°25'40"N, 33°07'03"E, 1534 m, 21.IV.2006, 1 specimen; **Kayseri:** Develi, 38°27'59"N, 35°31'05"E, 1834 m, 28.V.2007, 2 specimens; **Konya:** Obruk, 38°10'27"N, 33°10'58"E, 994 m, 15.IV.2006, 2 specimens; Akşehir, 38°30'14"N, 31°35'43"E, 953 m, 16.IV.2006, 4 specimens; Akşehir, 38°26'31"N, 31°39'53"E, 1002 m, 16.IV.2006, 1 specimen; Seydişehir, 37°23'33"N, 31°59'26"E, 1096 m, 18.IV.2006, 1 specimen; Cihanbeyli, 38°48'49"N, 32°54'03"E, 963 m, 03.V.2007, 9 specimens; **Niğde:** Çamardı, 37°51'33"N, 34°57'30"E, 1585 m, 23.IV.2006, 1 specimen; **Yozgat:** Aydıncık, 40°13'12"N, 35°18'56"E, 639 m, 06.V.2006, 1 specimen; col. M. Kabalak.

70. *Dicronychus obscuripennis* (Pic, 1899)

Material Examined: **Konya:** Cihanbeyli, 38°40'30"N, 33°07'13"E, 927 m, 15.IV.2006, 1 specimen; col. M. Kabalak.

71. *Dicronychus senaci* Desbrochers des Loges, 1870

Material Examined: **Konya:** Cihanbeyli, 38°40'30"N, 33°07'13"E, 927 m, 15.IV.2006, 2 specimens; **Sivas:** Gemerek, 39°28'40"N, 35°57'59"E, 1809 m, 03.VI.2007, 3 specimens; col. M. Kabalak.

Subfamily: Lissominae Laporte, 1835

Genus: *Drapetes* Dejean, 1821

72. *Drapetes mordelloides* (Host, 1789).

Material Examined: **Kırşehir:** Akpınar, 39°26'43"N, 34°05'50"E, 1309 m, 05.VII.2006, 1 specimen; **Nevşehir:** Ürgüp, 38°36'04"N, 34°54'24"E, 1092 m, 07.VII.2006, 1 specimen; **Sivas:** Şarkışla, 39°34'27"N, 36°14'36"E, 1351 m, 03.VI.2007, 1 specimen; col. M. Kabalak.

Faunistic composition of the Central Anatolian Region

As a result of this study, it was found that the major part of the Elateridae fauna of the Central Anatolian region is formed by the subfamilies Elaterinae (27 species; 37.5%) and Cardiophorinae (20 species; 27.8%). These subfamilies are followed by the subfamilies Dendrometrinae (11 species; 15.3%), Negastrinae (6 species; 8.3%), Agrypninae (4 species; 5.5%), Melanotinae (3 species; 4.2%) and Lissominae (1 species; 1.4%) (Figure 3) in species richness. The genus *Cardiophorus* is the richest genus with 15 species from the Central Anatolian region (Figure 4). The genus *Cardiophorus* is followed by *Agriotes* (9 species), *Ampedus* (8 species), *Dicronychus* and *Zorochores* (5 species each), *Melanotus* and *Peripontius* (3 species each), *Athous*, *Hemicrepidius*, *Prosternon*, *Selatosomus* (2 species each) and *Aeoloderma*, *Aeolosomus*, *Agrypnus*, *Dalopius*, *Drapetes*, *Drasterius*, *Idotarmonides*, *Limoni*, *Limonicus*,

Mulsanteus, *Nothodes*, *Quasimus* and *Synaptus* (1 species each).

The numbers of species in genera found in the Central Anatolian region were compared with the known numbers of species in genera of Turkey according to Mertlik and Platia (2008) (Table 3). It is apparent that the distributions of species in each genus show that Elateridae fauna found in this study are partially consistent with Elateridae fauna of Turkey.

Ecological properties of fauna

Results show that *Agriotes paludum* (629 specimens) is the most abundant species. *Synaptus filiformis* (430 specimens), *Cardiophorus nigratissimus* (284 specimens), *Adrastus anatolicus* (273 specimens), *Drasterius bimaculatus* (231 specimens), *Agriotes sputator* (155 specimens) and *Cardiophorus dolini* (150 specimens) are also abundant species. *Adrastus montanus*, *Agriotes propleuralis*, *Ampedus nigroflavus*, *Ampedus ochropterus*, *Cardiophorus levis*, *Cardiophorus miniaticollis*, *Dicronychus obscuripennis*, *Hemicrepidius nigrifolius*, *Idotarmonides anatolicus*, *Limoniscus elegans*, *Melanotus bajulus*, *Prosternon tessellatum*, *Zorochros georgicus* and *Zorochros stibicki*, are the rarest species, which are represented with one specimen each (Table 1). In the light of these data, it can be stated that species with most collected specimens may have dense populations and species with fewer collected specimens may have sparse populations in nature. However, other factors may have affected the number of specimens collected, including the coincidence of collecting dates with low or high density of populations, effects of collecting habitats on population density and different collecting methods.

Specimens that were collected from different

Table 3. Comparison of the number of species in genera in the Elateridae between the Central Anatolian region and Turkey.

Genera	Number of species in the Central Anatolian Region	Number of species in Turkey
<i>Agriotes</i>	9	69
<i>Cardiophorus</i>	15	61
<i>Athous</i>	2	49
<i>Ampedus</i>	8	37
<i>Dicronychus</i>	5	23
<i>Melanotus</i>	3	21
<i>Zorochros</i>	5	15
<i>Selatosomus</i>	2	14
<i>Adrastus</i>	3	10
<i>Peripontius</i>	3	10
<i>Hemicrepidius</i>	2	7
<i>Agrypnus</i>	1	3
<i>Limonius</i>	1	3
<i>Mulsanteus</i>	1	3
<i>Aeoloderma</i>	1	2
<i>Dalopius</i>	1	2
<i>Drapetes</i>	1	2
<i>Idotarmonides</i>	1	2
<i>Limoniscus</i>	1	2
<i>Prosternon</i>	2	2
<i>Aeolosomus</i>	1	1
<i>Drasterius</i>	1	1
<i>Nothodes</i>	1	1
<i>Quasimus</i>	1	1
<i>Synaptus</i>	1	1

altitudes and vertical distributions of species exhibited differences. Evaluations of vertical distributions of species were made in terms of vertical intervals, which are appointed as 250 meters (A: 0-250 m, B: 251-500 m, C: 501-750 m, D: 751-1000 m, E: 1001-1250 m and F: 1251-1500 m, G: 1501-1750 m, H: 1751-2000 m and I: 2000 m and above). Evaluation of the results showed that there are differences in vertical distributions of species. Accordingly, most of the species were collected from interval E with 43 species. This interval is followed by interval F (38 species), interval D (33 species), interval G (24 species), interval C (16 species), interval H (12 species), interval B (6 species), interval I (2 species) and interval A (1 species) (Figure 5, Table 1). Vertical distributions of species are given in Table 1. *Agriotes paludum*,

Drasterius bimaculatus and *Synaptus filiformis* were the most diverse species vertically.

During the fieldwork, species were collected from different habitats using different collecting methods. Most of the species were collected from herbaceous plants near streams (25 species). Other habitats included herbaceous plants near fields and roads (23 species), under stones and plants (12 species), under stones and debris near streams (10 species), forest ground herbaceous plants (10 species), decaying trees (*Populus* spp. and *Salix* spp.) (eight species), trees and bushes (seven species), light trap (six species). *Cardiophorus miniatricollis* was collected incidentally inside buildings. Evaluating the collection methods showed that 47 species were collected using insect nets, 30 species using an aspirator, 7 species using the Japanese umbrella, and 6 species using light traps (Table 1). Adults of most detected species occur on herbaceous plants (near streams, fields, roads and forested ground cover). Most of the rest occur under stones and plants, in decaying trees, under stones and debris near streams. Minor numbers of detected species occur on trees and bushes and nocturnal species, which were collected by using light traps.

Specimens were collected between April – November (21 species in April, 47 in May, 41 in June, 27 in July, 4 in August and 1 in September and November) (Figure 6). It is apparent from these data that species of Elateridae are mainly active in May and June, and that April and July are secondarily appropriate months for collecting Elateridae. The species showed minimum activity in August, September, October and November. Collecting periods of species exhibit differences: four species collected only in

April (5.6%), 12 species in May (16.7%), six species in June (8.3%), seven species in July (9.7%), three species in April and May (4.2%), one species in April and June (1.4%), five species in April, May and June (6.9%), five species in April, May, June and July (6.9%), two species in April, May and July (2.8%), 14 species in May and June (19.4%), five species in May, June and July (6.9%); two species in June and July (2.8%), one species in June, July and August (1.4%), three species in July and August (4.2%) and 1 species in April, May, June, July, September and November (1.4%) (Figure 5). Numbers of species varied by month: 29 species were collected for one month, 24 species were collected for two months, eight species were collected for three months, five species were collected for four months and one species (*Drasterius bimaculatus*) was collected for six months. These data help to estimate the occurrence of the species in nature. *Drasterius bimaculatus* occurs for the longest time in nature followed by *Agriotes paludum*, *Agriotes proximus*, *Agriotes sputator*, *Cardiophorus dolini* and *Synaptus filiformis*. As a result of evaluations of active periods of genera, which are represented more than one species, species of the genus *Adrastus* were collected during May-July; species of the genus *Agriotes* were collected during April-July; species of the genus *Ampedus* were collected during April-June; species of the genus *Athous* were collected during April-July; species of the genus *Cardiophorus* were collected during April-July; species of the genus *Dicronychus* were collected during April-June; species of the genus *Hemicrepidius* were collected during June-July; species of the genus *Melanotus* were collected during July-August; species of the genus *Peripontius* were collected during April-July; species of the genus *Prosternon* were collected during June-August; species of

the genus *Selatosomus* were collected during May-June; species of the genus *Zorochros* were collected during April-May. These data may help understanding phenologies of these genera (Table 1).

Zoogeographical composition of fauna

As a result of the evaluations of distributions of detected species in zoogeographical regions and subregions (Figure 7, Table 2), it is evident that 11 species are endemic to Turkey. The remaining 61 species are shared differently with the European part of the Western Palaearctic (53 species), the Middle East (46 species), Middle Asia (25 species), Siberia (12 species), North Africa (nine species), the Far East (seven species), Nearctic region (two species) and the Australian region (one species). This composition shows that the geographical situation of Turkey, at the intersection of Asia, Africa and Europe, affects its fauna. Research area shares most species with the European part of the Western Palaearctic and, subsequently, Asia (Middle Asia, the Middle East, Siberia and the Far East). Because most of Turkey is a part of Asia, that situation may be evaluated as contradictory. However, Cate (2007) reported that the Elateridae fauna of Turkey share the most species with the European part of the Western Palaearctic region (223 species): Asia (194 species), followed by North Africa (29 species), Nearctic region (6 species), Afrotropical region (one species), the Australian region (one species) and Neotropical region (one species). Cate's (2007) data are consistent with our findings. According to Cate (2007), *Agriotes lineatus* and *A. sputator* are the most widely distributed species within the research area. *Aeoloderma crucifer*, *Ampedus sanguinolentus*, *Cardiophorus* (s.str.) *vestigialis*, *Drapetes mordelloides*, *Drasterius bimaculatus* and *Selatosomus* (s.str.) *latus*

are also widely distributed species within the research area.

According to the present literature, the distribution of the collected species in Turkey are given in Table 2. Thirty-four species out of 72 are reported for the first time from the Central Anatolian region. Detailed locality records of *Agriotes modestus*, *Ampedus nigroflavus*, *A. pomonae*, *Dalopius marginatus*, *Drapetes mordelloides*, *Idotarmonides anatolicus*, *Zorochros georgicus*, *Z. heyrovskyi* and *Z. pilosellus* are given for the first time from the research area and Turkey. The research area shares many species with the Mediterranean (35 species), Eastern Anatolian region (33 species), Black Sea region (32 species), Aegean region (29 species), Marmara region (19 species) and the Southeastern Anatolian region (11 species) (Figure 8). Various researchers have previously recorded 38 species from the studied area. During this research, field studies were done following the political borders of provinces, and not the geographical border of the Central Anatolian region. The borders of geographical regions of Turkey were determined according to geographical, floristic and climatic features, but some parts of the provinces of the research area are situated in other geographical regions. As a result, species sharing data of the Central Anatolian and other geographical regions may be affected by that situation.

Acknowledgements

The data reported here are part of the thesis by Kabalak 2010. We thank the Scientific and Technological Research Council of Turkey (Tübitak) for supporting our research with the project "Systematical Studies on the Family Elateridae (Coleoptera) in Central Anatolian and Middle Black Sea Regions". We would

like to thank Dr. Giuseppe Platia for checking the identification of species. We also would like to thank Yavuz Turan and Fatih Ergan for valuable help during field studies.

References

- Bodemeyer EV. 1900. *Quer durch Kleinasien in den Bulghan Dagh. - Die Druck und Verlags-Aktiengesellschaft*. 169 pp. Vormalis Dölter. Emmedingen.
- Booth RG, Cox ML, Madge RB. 1990. In: *Guides to Insects of Importance to Man. 3. Coleoptera*. 384 pp. International Institute of Entomology.
- Buysson HDu. 1891. Espèces nouvelles d'Elaterides. *L'Echange Revue Linnéenne* 7: 133-136.
- Cate P, Platia G. 1989. A new species of the genus *Cidnopus* Thomson from Greece: *Cidnopus macedonicus* n. sp. (Elateridae, Coleoptera). *Koleopterologische Rundschau* 59: 185-188.
- Cate P, Platia G. 1997. A new species of *Agriotes* Eschscholtz (Coleoptera, Elateridae) from Greece, Turkey and Syria. *Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen* 49: 109-113.
- Cate P, Platia G, Schimmel R. 2002. New species and records of click beetles (Coleoptera: Elateridae) from Iran, with a checklist of known species. *Folia Heyrovskyana* 10(1): 25-68.
- Cate PG. 2007. Family Elateridae. 89-209. In Löbl I. and Smetana A, Editors. *Catalogue of Palaearctic Coleoptera, Vol. 4. Elateroidea - Derodontoidea - Bostrichoidea - Lymexyloidea - Cleroidea - Cucujoidea*. 935 pp. Apollo Books. Stenstrup.
- Chassain J. 1998. Note sur le Genre *Limoniscus* avec désignation d'un Lectotype et description d'une espèce nouvelle (Coleoptera, Elateridae). *Le Coleopteriste* 33: 119-122.
- Demirsoy A. 1999. *Yaşamın Temel Kuralları Entomoloji Cilt II/Kısım II*. Meteksan A. Ş. Ankara. 941s.
- Dolin VG. 1995. Neue *Zorochrus*-Arten (Coleoptera, Elateridae) aus dem Transkaukasus und Zentral-Asien. *Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen* 47(1/2): 19-24.
- Dolin VG, Mertlik J. 2002. Drei neue Klein-Asiatischen und Iranischen *Zorochrus*-Arten (Coleoptera, Elateridae, Negastrinae). *Vestnik zoologii* 36(6): 89-93.
- Dušánek V, Mertlik J. 2007. Land of Athouses - the usual day of entomologists in Turkey (Coleoptera, Elateridae). *Elateridarium* 1: 68-72.
- Fairmaire ML. 1866. Notice sur les Coleopteres recoltés par M.J. LEDERER (sur le Bosz-Dagh, Asie Mineure). *Annales de la Societe Entomologique de France* 35: 249-280.
- Gül-Zümreoğlu S. 1972. *İzmir Bölge Zirai Mücadele Araştırma Enstitüsü Böcek ve Genel Zararlılar Kataloğu*. Zirai Mücadele ve Zirai Karantina Genel Müdürlüğü yayınlari, İzmir, 119s.
- Guglielmi A, Platia G. 1985. Contributo alla conoscenza degli Elateridi di Grecia e Turchia (Coleoptera). *Fragmenta Entomologica* 18(1), 169-224.

Gurjeva EL. 1984 Palearctic species of *Prosternon* Latreille, 1834 (Coleoptera, Elateridae). *Entomological Review* 63(3): 120-123.

Gurjeva EL. 1989. *Fauna SSSR. Elateridae subf. Athoinae (Tribe Ctenicerini)*. Nauka Leningrad 12(3): 1- 293.

Gülperçin N, Tezcan S. 2009. Faunistic notes on the species of Elateridae (Coleoptera) in İzmir province of Turkey. *Munis Entomology and Zoology* 4(2): 519 – 526.

Heyden LVO, Reitter E, Weise J. 1906. *Catalogus Coleopterorum Europae, Caucasian et Armeniae Rossicae*. 2nd edition. 774 pp. Friedländer, Berlin.

Horion A. 1953. *Faunistik der mitteleuropäischen Käfer*. Entomologische Arbeiten aus dem Museum G. Frey Sonderband, München.

Jagemann E, 1939, Einige neue Elateriden-Formen aus dem paläarkt. Faunengebiet. *Entomologisches Nachrichtenblatt*, 13(1/2): 68-70.

Kabalak M, Sert O. 2005. Ankara İli Elateridae (Coleoptera) familyası türleri üzerinde faunistik çalışmalar. *Türkiye Entomoloji dergisi* 29(1): 49-60.

Kabalak M, Sert O. 2006. New record of *Melanotus bajulus* (Erichson, 1841) (Coleoptera: Elateridae) for the Turkish fauna. *The Coleopterists Bulletin* 60(3): 216.

Kabalak M, Sert O. 2009. A new *Agriotes* species (Coleoptera: Elateridae) from Turkey. *Turkish Journal of Zoology* 33(4): 451-455.

Kabalak M. 2010. Systematic researches on the family Elateridae (Coleoptera) of Central Anatolian Region. PhD. Thesis, Hacettepe University. Ankara.

Kesdek M, Platia G, Yıldırım E. 2006. Contribution to the Knowledge of Click-Beetles (Coleoptera: Elateridae) Fauna of Turkey. *Entomofauna* 27 (35): 417-432.

Laibner S. 2000. *Elateridae of the Czech and Slovak Republics České a Slovenské republiky*. Zlín Kabourek. 292 pp. (In English and Czech).

Lawrence JF. 1982. Coleoptera. In: Parker SP, editor. *Synopsis and Classification of Living Organisms*, pp. 482–553. McGraw-Hill.

Lodos N. 1998. *Türkiye Entomolojisi VI (Genel, Uygulamalı ve Faunistik)*. 300 pp. Ege Üniversitesi Ziraat Fakültesi Yayınları No: 529.

Lohse GA. 1979. Elateridae, In: Freude H, Harde KW, Lohse GA, editors. *Die Käfer Mitteleuropas*. 6. pp. 103-186. Goecke and Evers, Krefeld.

Merkl O, Mertlik J. 2005. Distributional notes and a checklist of click beetles (Coleoptera: Elateridae) from Hungary. *Folia Entomologica Hungarica* 66: 63-80.

Mertlik J. 2000. Contribution to the knowledge of Turkish species of the genus *Selatosomus* (Coleoptera: Elateridae). *Folia Heyrovskyana* 8(1): 1-15.

Mertlik J. 2005. Description of three new species of family Elateridae (Coleoptera from Syria and Turkey. *Folia Heyrovskyana* 12(4): 167-173.

Mertlik J, Dušanek V. 2006. Description of five new species of click-beetles (Coleoptera, Elateridae) from the Palaearctic region with remarks about the distributions 22 additional species. *Folia Heyrovskyana* 13(4): 145-162.

Mertlik J, Platia G. 2008. Catalogue of the family Cebrionidae, Elateridae, Lissomidae, Melasidae and Throscidae (Coleoptera) from Turkey. *Elateridarium ročník* 2: 1-40.

Platia G. 1989. Descrizione di nuove specie di Elateridi della Grecia e Turchia (Coleoptera, Elateridae). *Lavori Società Veneziana di Scienze Naturali* 14(1): 79-86.

Platia G. 1994. *Fauna d'Italia, Coleoptera Elateridae*. 429 pp. Edizioni Calderini. Bologna..

Platia G. 2001. Description de trois nouvelles especes du genre *Ampedus* Dejean de la region palearctique, avec une synonymie nouvelle (Coleoptera: Elateridae). *Biocosme Mésogéen* Nice, 18(2): 65-73.

Platia G. 2003a. Descrizione di otto nuove di *Agriotes* del gruppo *nuceus* Fairmaire della Turchia con chiave di determinazione all specie note (Insecta, Coleoptera, Elateridae). *Il Naturalista Valtellinese - Atti del Museo civico di storia naturale di Morbegno* 14: 13-28.

Platia G. 2003b. Descrizione di nuove specie di *Athous* Eschscholtz del sottogenere *Orthathous* Reitter della Turchia (Coleoptera, Elateridae). *Lambillionea* CIII 2: 263-268.

Platia G. 2003c. Description de deux nouvelles especes du genre *Peripontius* Gurjeva de l'Asie mineure avec un tableau de determination des especes bicolores de la region (Coleoptera: Elateridae: Synaptini).

Biocosme Mésogéen 20(2): 85-92.

Platia G. 2004a. Nuovi Elateridi d'Europa, Turchia e Quatar con note tassonomiche e genemiche su alcune specie (Coleoptera: Elateridae). *Boletin De La Sociedad Entomologica Aragonesa* 35: 39-45.

Platia G. 2004b. Descrizione di nuovi Elateridi della regione Palearctica con note geonemiche e sinonimiche (Coleoptera, Elateridae). *Lambillionea* 104(1): 98-108.

Platia G. 2008. New species and chorological data of click-beetles from western and southern of palearctic region (Coleoptera, Elateridae). *Biocosme Mésogéen* 25(4): 137-150.

Platia G, Cate P. 1990. Note sistematiche e sinonimiche su Elateridi Palearctici (Coleoptera Elateridae). *Bollettino della Società Entomologica Italiana* Genova 122(2): 111-114.

Platia G, Gudenzi I. 1996a. Descrizione di tre nuove specie di Elateridi di Grecia, Turchia ed Isola di Cipro con note geonemiche e sinonimiche (Coleoptera, Elateridae). *Bollettino del Museo Regionale di Scienza Naturali* Torino 14(1): 139-150.

Platia G, Gudenzi I. 1996b. Descrizione di tre nuove specie di *Athous* Eschscholtz del sottogenere *Orthathous* Reitter della Turchia con chiave di determinazione dei maschi delle specie note (Coleoptera, Elateridae). *Lambillionea* 96(1): 235-241.

Platia G, Gudenzi I. 1998a. Note tassonomiche e faunistiche su Elateridi del Vicino Oriente (Coleoptera, Elateridae). *Bollettino dell'Associazione Romana di Entomologia* 53(1-4): 49-62.

Platia G, Gudenzi I. 1998b. Descrizione di nuovi Elateridi di Grecia e Turchia con note e chiave di determinazione per gli *Agriotes* del gruppo *gurgistanus* Faldermann (Coleoptera, Elateridae). *Lambillionea* 98(4): 629-640.

Platia G, Gudenzi I. 1999. Descrizione di nuove specie di Elateridi della regione Palearctica con note geonemiche e sinonimiche (Insecta Coleoptera Elateridae). *Quaderno di Studi e Notizie di Naturalle della Romagna* 11: 17-31.

Platia G, Gudenzi I. 2000a. Descrizione di un nuovo genere e tredici nuove specie di Elateridi della regione palearctica con note geonemiche (Insecta Coleoptera Elateridae). *Quaderno di Studi e Notizie di Naturalle della Romagna* 13: 65-83.

Platia G, Gudenzi I. 2000b. Revisione dei *Cardiophorus* Eschscholtz della Turchia. I: Le specie bicolori. (Coleoptera, Elateridae, Cardiophorinae). *Lambillionea* 100: 601-612.

Platia G, Gudenzi I. 2002a. Revisione dei *Cardiophorus* della Turchia. II. Le specie unicolori (Coleoptera Elateridae). *Bollettino della Società Entomologica Italiana* 134(1): 27-55.

Platia G, Gudenzi I. 2002b. Descrizione di venti nuove specie di Elateridi della regione Palearctica (Insecta Coleoptera Elateridae). *Quaderno di Studi e Notizie di Storia Naturalle della Romagna* 16: 73-98.

Platia G, Gudenzi I. 2004a. Contributo alla conoscenza dei *Dicronychus* Brullé, 1832 della Turchia con descrizione di nuove specie e chiave di determinazione per le specie note (Coleoptera: Elateridae: Cardiophorini). *Boletin De La Sociedad Entomologica*

Aragonesa 34: 9-22.

Platia G, Gudenzi I. 2004b. Nuovi Elateridi D'Europa, Turchia e Qatar con note tassonomiche e geonemiche su alcune specie (Coleoptera: Elateridae). *Boletin De La Sociedad Entomologica Aragonesa* 35: 39-45.

Platia G, Gudenzi I. 2005. Description of eleven new species of click-beetles of the Palearctic region, a case of legs teratology and new records of some species of the Italian fauna (Insecta Coleoptera Elateridae). *Quaderno di Studi e Notizie di Naturalle della Romagna* 21: 109-127.

Platia G, Gudenzi I. 2007. Click-beetles species and records new to the palearctic region (Insecta Coleoptera Elateridae). *Quaderno di Studi e Notizie di Naturalle della Romagna*, 24: 79-86.

Platia G, Gudenzi I. 2009. Descriptions of new species of click beetles from the palearctic region, with chorological notes (Insecta Coleoptera Elateridae). *Quaderno di Studi e Notizie di Naturalle della Romagna* 28: 111 – 131.

Platia G, Kabalak M, Sert O, 2007, Descriptions of two new species of click-beetle (Coleoptera: Elateridae) from Turkey, *Zootaxa*, 1415: 43-47.

Platia G, Kovancı B. 2005. A new species of *Athous* Eschscholtz (Coleoptera: Elateridae) from Turkey. *Türkiye Entomoloji dergisi* 29(1): 5-9.

Platia G, Marini M. 1990. Gli Elateridi (Coleoptera) della collezione Andrea Fiori, conservati nel Museo di Zoologia dell'Università di Bologna. *Giornale italiano di Entomologia* 5: 31-47.

Platia G, Mertlik J. 1996. *Anostirus turcicus* sp. n.(Coleoptera: Elateridae) from Turkey. *Klapalekiana* 32(3-4): 225-228.

Platia G, Schimmel R. 1991. Descrizione di nuove specie di Elateridi di Grecia e Turchia con chiave per due gruppi di specie (Coleoptera, Elateridae). *Lavori Società Veneziana di Scienze Naturali*. 16: 131-142.

Platia G, Schimmel R. 1992. Descrizione di nuove specie di Elateridi di Grecia e Turchia (Coleoptera, Elateridae). *Lavori Società Veneziana di Scienze Naturali* 17: 87-95.

Platia G, Schimmel R. 1993. Descrizione di nuove specie di Elateridi di Grecia e Turchia con note su alcuni *Agriotes* Eschscholtz (Coleoptera, Elateridae). *Lavori Società Veneziana di Scienze Naturali* 18: 51-57.

Platia G, Schimmel R. 1994. Descrizione di tre nuove specie di Elateridi di Grecia, Turchia e Siria, con note su *Agriotes cribrithorax* Pic, 1910 (Coleoptera, Elateridae). *Lavori Società Veneziana di Scienze Naturali* 19: 77-82.

Platia G, Schimmel R, Tarnawski, D. 2009. Description of two new species of *Agriotes* Eschscholtz of the *Agriotes nuceus*-group from Turkey with chorological notes (Insecta: Coleoptera: Elateridae). *Genus* 20 (2): 243-248.

Platia G, Tarnawski D. 1998. Description of two new species of click-beetles from Turkey (Coleoptera: Elateridae). *Genus* 9(3): 269-274.

Platia G, Yıldırım E, Kesdek M. 2007. *Agrypnus sarikamisensis* sp. n. and *Athous artvinensis* sp. n., two new species of

Elateridae (Coleoptera) from Turkey. *Biocosme Mésogéen* 24(2): 57-63.

Reitter E. 1905. Bestimmungen - Tabelle der europäischen Coleopteren. Elateridae, 1. Theil. Elaterini, Subtribus: Athouina, aus der palaearktischen Fauna, *Verhandlungen des naturforschenden Vereines in Brünn* 56: 3-122.

Reitter E. 1910. Beschreibung neuer Coleopteren aus der Familie der Elateriden und Bemerkungen über bekannte Arten. *Wiener Entomologische Zeitung* 29(5-6): 165-178.

Reitter E. 1911. *Fauna Germanica. Die Käfer Deutschen Reiches*, III. Band. Schr. Dtsch. Lehrerver. Naturk., Stuttgart, 26: 436pp.

Reitter E. 1918. Bestimmungstabelle der paläarktischen Elater – Arten. *Wiener Entomologische Zeitung*, 37(1-2): 81-105.

Sahlberg J. 1912-1913. Coleoptera mediterranea orientalia, quae in Aegypta, Palaestina, Syria, Caramania atque in Anatolia occidentali anno 1904. *Öfversigt af Finsha Vetenskaps-Societetens Förhandlingar* 55(13): 127-132.

Schenkling S. 1925. *Coleopterorum catalogus, auspiciis et auxilio*. 263 pp. W. Junk. Pars 80, Elateridae 1.

Schenkling S. 1927. *Coleopterorum catalogus, auspiciis et auxilio*. pp. 264-636. W. Junk. Pars 88, Elateridae II.

Schimmel R. 1990. Neue Schnellkäfer, sowie Bemerkungen über bekannte Arten dieser Familie aus der Türkei, aus Spanien und aus Deutschland (Coleoptera, Elateridae).

Entomologische Blätter für Biologie und Systematik der Käfer 86(1-2): 71-84.

Schimmel R, Platia, G., Tarnawski, D. 2009. Two new species of the genus *Mulsanteus* Gozis, 1875 from Turkey (Insecta: Coleoptera: Elateridae). *Genus* 20(2): 249-255.

Schwarz O. 1892. Revision der paläarktischen Arten der Elateriden - Gattung *Melanotus* Eschsch. *Deutsche Entomologische Zeitschrift* 1: 145-164.

Schwarz O. 1900. Neue paläarktische Elateriden. *Deutsche Entomologische Zeitschrift* 1: 98-111.

Schwarz O. 1902. Neue Elateriden. *Stettiner Entomologische Zeitung* 63: 194-316.

Tarnawski D. 1995. A revision of the genus *Selatosomus* Stephens, 1830 (Coleoptera: Elateridae: Athoinae: Ctenicerini). *Genus* Wroclaw Supplement: 183pp.

Tarnawski D. 1996. A world catalogue of Ctenicerini Fleutiaux, 1936 (Coleoptera: Elateridae: Athoinae). *Genus* Wroclaw 7(4): 587-663.

Tarnawski D. 2000. *Fauna Polski (Fauna Poloniae) Vol. 21. Elateridae Part 1; Sprezykowate, Czesc 1 (Insecta: Coleoptera) (Czesc ogolna oraz podrodziny: Agrypninae, Negastrinae, Diminae i Athoinae)*. Warsaw.

Tarnawski D. 2001. A world catalogue of Ctenicerini Fleutiaux, 1936. Part II (Coleoptera: Elateridae: Athoinae). *Genus* 12(3): 277-323.

Winkler A. 1924 – 1932. Catalogus Coleopterorum Regionalis Palearcticae. pp

620-663. Wien.

Wurst C. 1994. Neue Schnellkäfer der Unterfamilie Athoinae aus dem Taurusgebirge, Südtürkei (Coleoptera: Elateridae). *Mitteilungen Entomologischer Verein* 29: 59-66.

Wurst C. 1995a. Vier neue Schnellkäfer aus Europa und Kleinasien (Coleoptera: Elateridae). *Entomologische Zeitschrift* 105(8): 147-156.

Wurst C. 1995b. *Ampedus tingitanus* n. sp. und *Brachygonus hadullanus* n. sp., zwei neue Schnellkäfer aus Nordafrika und Kleinasien (Coleoptera, Elateridae). *Mitteilungen Entomologischer Verein* 30: 30-34.

Wurst C. 1997. *Ampedus minos* sp. n. und *Dima raineri* sp. n., zwei neue Schnellkäfer aus Griechenland, mit Bemerkungen zur Synonymie von *Ampedus ocellatus* (Buysson, 1891) (Coleoptera, Elateridae). *Entomologische Blätter* 93(1): 1-7.

Wurst C, Schimmel R. 1995. *Anostirus (Parastirus) nubilosus* n. sp., ein neuer Schnellkäfer aus dem Türkischen Kaukasus (Coleoptera, Elateridae). *Mitteilungen Entomologischer Verein*, 30: 25-29.

Yüksel H. 1970. *Türkiye'de bulunan telkurtları (Elateridae) türleri üzerinde sistematik çalışmalar*. Atatürk Üniversitesi Basimevi. 65s.

Zeising M, Brunne G. 2003. Neue Elateriden aus Portugal, Marokko und der Turkey (Coleoptera, Elateridae). *Entomologische Blätter für Biologie und Systematik der Käfer*. 98(3): 189-198.



